

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2537.—VOL. LIV.

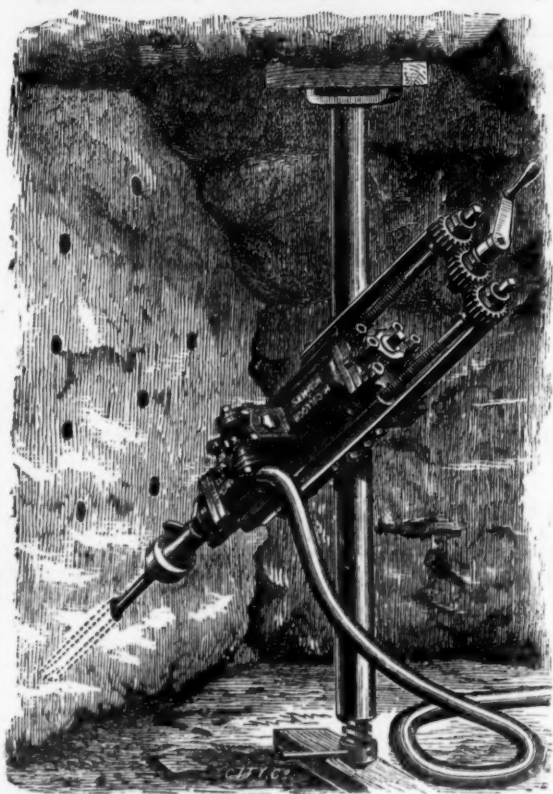
LONDON, SATURDAY, APRIL 5, 1884.

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FIRST SILVER MEDAL, ROYAL CORNWALL POLYTECHNIC
—Highest Award for Effectiveness in Boring, and Economy in
the Consumption of Air

JUBILEE EXHIBITION, 1882.
THE PATENT

"GORNISH" ROCK DRILL.



This Drill has been constructed after a long practical experience in the requirements necessary for Mines, and has more than realised the expectations of its inventors. The chief objects in view were **GREATER DURABILITY AND LESS LIABILITY TO DIS-ARRANGEMENT**; but it has also proved itself more **EFFECTIVE AND ECONOMICAL**.

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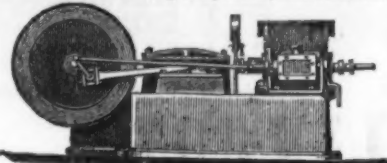
HOLMAN BROTHERS,
CAMBORNE FOUNDRY AND ENGINE WORKS,
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AND
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First Silver Medal awarded at Boring Competition, East Pool Mine, Sept. 1883.

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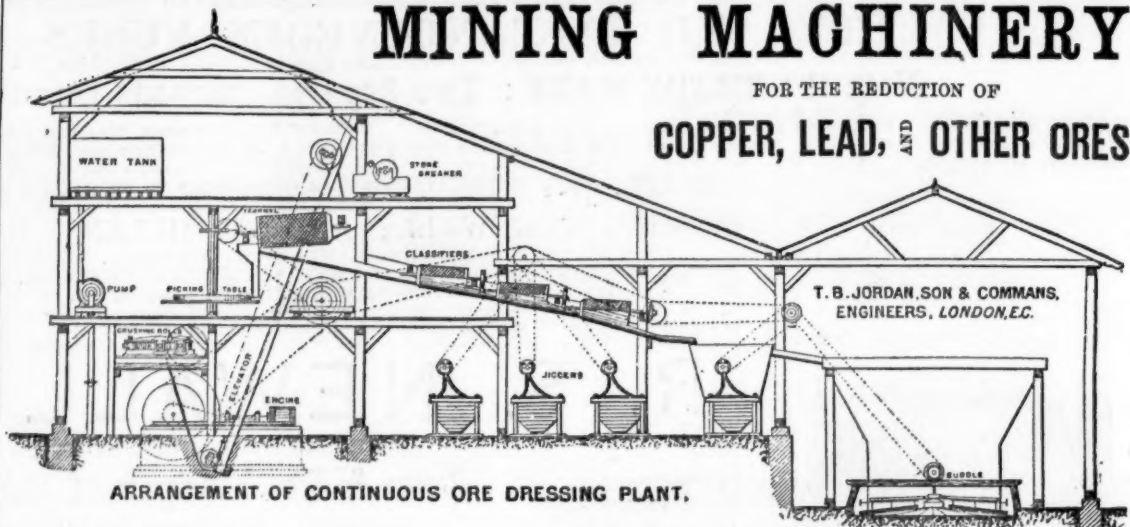
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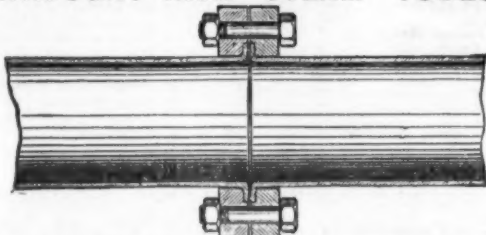
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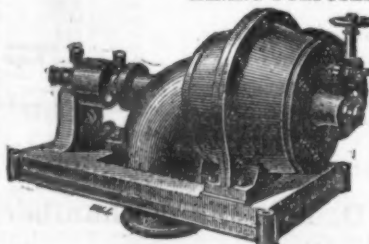


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FOR USE IN ALL BLASTING OPERATIONS AND SPECIALLY PREPARED FOR ANY CLIMATE

Note the **TRADE MARK**: Two Separate threads through centre of Fuse.

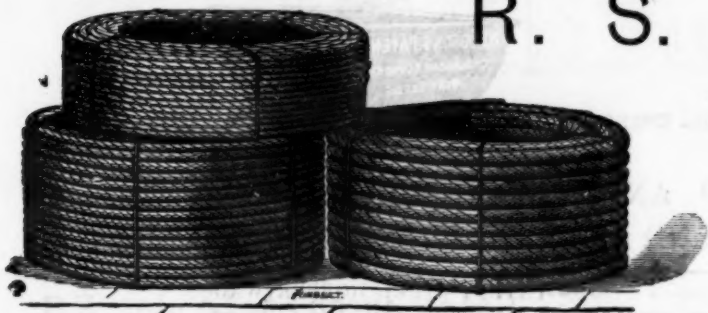
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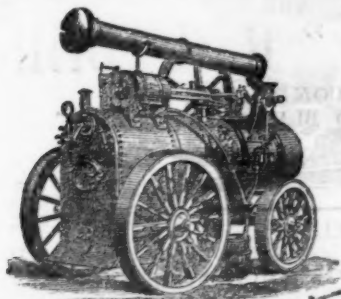
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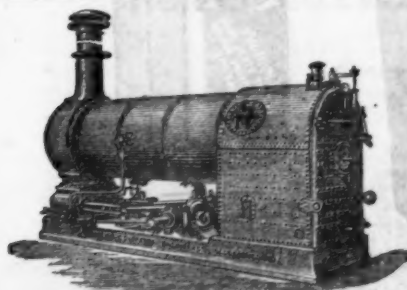
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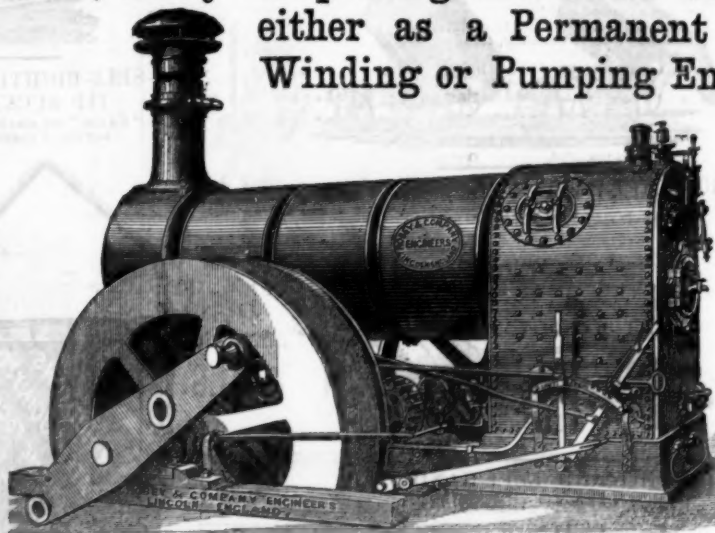


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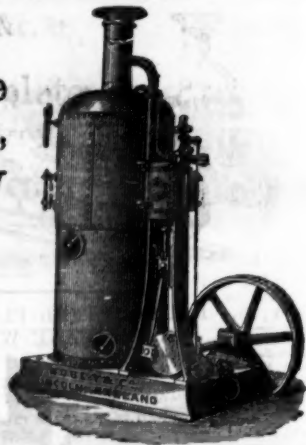


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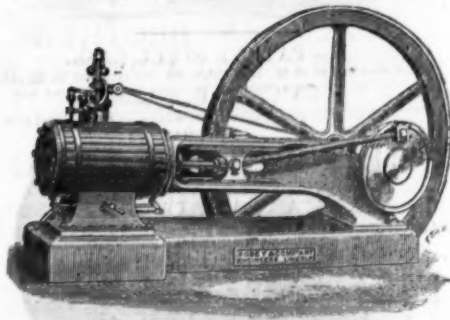
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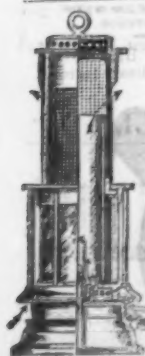
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Robey's Vertical Stationary Steam Engine, 1½ to 16-h.p.



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All parts made to gauge.

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Has no moving parts.

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Patent Steel Trucks, Points and Crossings,

PORTABLE RAILWAY, STEEL BUCKETS, &c., &c.

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Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.
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CAN BE MADE TO ANY SIZE, AND TO ANY GAUGE OF RAILS.

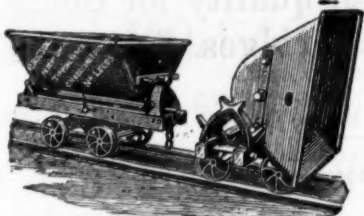
1.—PATENT STEEL END TIP WAGONS.



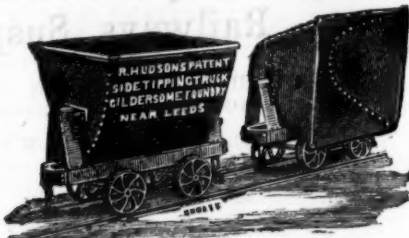
7.—PATENT STEEL MINING WAGONS.



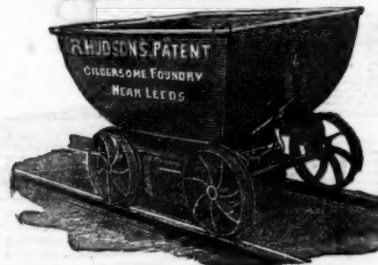
2.—PATENT UNIVERSAL TRIPLE-CENTRE STEEL TIPPING TRUCK,
Will tip either side or either end of rails.



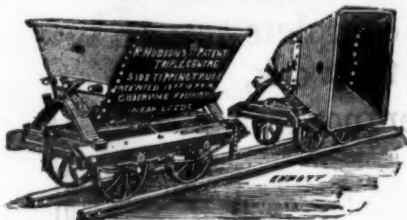
8.—PATENT DOUBLE-CENTRE STEEL SIDE TIP WAGONS,
Will tip either side of Wagons.



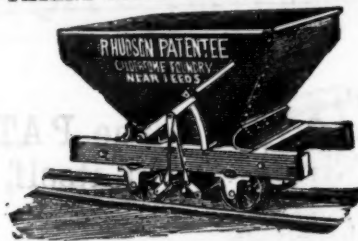
12.—PATENT STEEL HOPPER WAGON,
WITH BOTTOM DOORS.



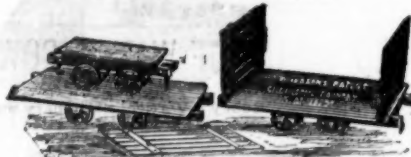
3.—PATENT TRIPLE-CENTRE STEEL SIDE TIP WAGONS.



13.—PATENT STEEL HOPPER WAGON.



4.—PATENT STEEL PLATFORM OR SUGAR CANE WAGON.



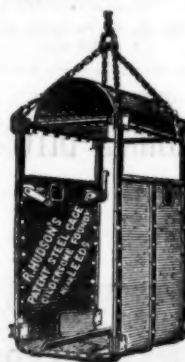
9.—PATENT STEEL ALL-ROUND TIP WAGON.



14.—SELF-RIGHTING STEEL TIP BUCKET.
(The "CATCH" can also be made SELF-ACTING if desired.)



15.—STEEL CAGE.



5.—PATENT STEEL CASK.
As supplied to H.M. War Office for the late war in Egypt.
DOUBLE the STRENGTH of ordinary Casks without any INCREASE in weight.
(Made from 10 gals. capacity UPWARDS to any desired size.)



10.—LEFT-HAND STEEL POINT AND CROSSING.



11.—RIGHT AND LEFT-HAND STEEL POINT AND CROSSING.



16.—PATENT STEEL WHEELBARROWS.
Made to any Size.
Lightest and Strongest in the Market.



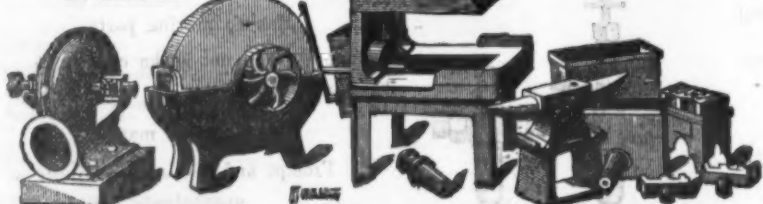
17.—STEEL SELF-CONTAINED TURN TABLE.



(Also made in CAST Iron for use where weight is not a consideration.)

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PATENT IMPROVED IRON SMITH'S HEARTH,
NO BRICKWORK REQUIRED.

A Special quality made almost entirely in STEEL, effecting a GREAT SAVING IN WEIGHT.



Large numbers in use by all the principal Engineers in this country and abroad.

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Largely employed in the South African Diamond Fields.

No. 19.—PATENT STEEL CHARGING BARROW,
DOUBLE the STRENGTH & much LIGHTER than ordinary Barrows



ALL KINDS OF BOLTS NUTS, AND RIVETS MADE TO ORDER ON THE PREMISES

BELL'S ASBESTOS.

BELL'S PATENT ASBESTOS BLOCK PACKING, for High Pressure Engines. This Packing has been specially designed to overcome the difficulties experienced by engineers and others in the practical working of engines of the most modern type of construction. The greatly increased skill and workmanship now obtained in the construction of engines and boilers have led to a rapid increase in the working pressure, the object being the attainment of a high rate of speed combined with economical working, the practical advantage of which, however, cannot be realised unless the Packings are so constructed as to avoid stoppages for the purpose of re-packing the stuffing boxes. It is now a recognised fact that the most perfect heat-resisting material suitable for the purpose of a Packing is Asbestos, but to ensure a successful application of this fibre, great skill is required in manufacture. In this Packing the Asbestos is woven into a stout cloth, and owing to the peculiar way in which it is manipulated, great elasticity is imparted to the Packing. This Packing has met with the most unqualified approval wherever it has been used, and on being taken out after about twelve months, working at 70 lb. pressure, it has been found to be in a perfect state of preservation, and was therefore replaced. The Patent Block Packing is square, as Fig. 1, and Figs. 2 and 3 represent the Round Block Packing with solid and hollow rubber core, and Fig. 4, without core, but with rubber inlay. An Engineer writes as follows:—"The Asbestos Block Packing works splendidly. I have never seen its equal. We keep our gland nuts so that you can move them with finger and thumb, and can maintain a constant vacuum of 28 1/2 in." As these packings are extensively imitated, and as it is a common practice among dealers and agents to supply the cheaper manufactures at my list prices, users are requested to see that the packing supplied to them bears my trade mark.

BELL'S ASBESTOS BOILER PRESERVATIVE. This useful mixture by absorbing the free oxygen that is in the water entirely checks pitting and corrosion. It also disintegrates incrustation so immediately as to prevent its adhering to the plates. Not only is a great economy of fuel effected by keeping boilers clean, but the risk of having the plates burned is thereby obviated. It has been computed that 1/2 in. thick of incrustation causes a waste of 15 per cent. of coal; 3/4 in., 60 per cent.; 1 in., 150 per cent. Thus the Preservative avoids the great risks which are inseparable from scaled plates, lengthens the life of a boiler and covers its own cost a hundred-fold by economy of fuel. It is entirely harmless, and has no injurious action on metals. It can be put into the feed tank or boiler, as may be most convenient. Sold in drums and casks bearing the Trade Mark, without which none is genuine.

BELL'S ASBESTOS YARN and SOAPSTONE PACKING for Locomotives, and all Stationary Engines running at very high speed with intense friction.

The following Testimonial refers to this Packing:—

Festiniog Railway, Locomotive Superintendent's Office, Portmadoc, January 13, 1883.

Mr. John Bell, 118, Southwark-street, S.E.

DEAR SIR,

I have much pleasure in saying that the Asbestos Yarn and Soapstone Packing gives every satisfaction; indeed, better than we expected. We have a locomotive packed with it, which has been running five months (and think of the piston speed with our small wheels). I think the Soapstone a great improvement, as it keeps the packing elastic, and prevents it getting hard. I am very pleased with its working, and also the very low price for such good lasting Packing. The Asbestos Yarn we find is very useful, and answers admirably.

Yours truly,

(Signed) W. WILLIAMS.

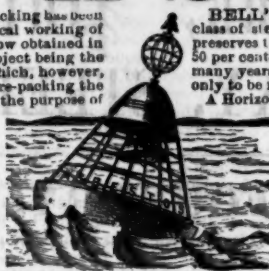


FIG. 5.

The goods of this house are of the highest quality only, and no attempt is made to compete with other manufacturers by the supply of inferior materials at low prices. All orders must be sent direct to the under-mentioned depots and not through Agents or Factors.



FIG. 6.



FIG. 1.

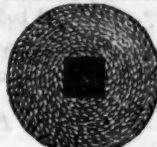


FIG. 2.

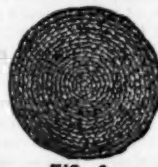


FIG. 4.

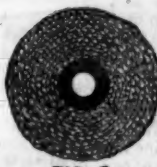


FIG. 3.

BELL'S ASBESTOS BOILER AND PIPE COVERING COMPOSITION, for coating every class of steam pipes and boilers, non-combustible and easily applied when steam is up; adheres to metals and preserves them from rust; prevents the unequal expansion and contraction of boilers exposed to weather; covers 50 per cent. more surface than any other coating, and is absolutely indestructible. It can be stripped off after many years' use, mixed up with 20 per cent. of fresh, and applied again. The composition is supplied dry, and is only to be mixed with water to the consistency required for use.

A Horizontal Boiler, 17 ft. 6 in. long, 15-H.P., gave the following results:—

Temperature on Plates - - - 186 deg.

" " Covering - - - 94 deg.

One ton of coal was saved per week, and although the fire was raked out every evening, 20 lbs. of steam were found in the boiler next morning.

The following Testimonial refers to this Covering:—

Offices of the Wimbledon Local Board, Wimbledon, Nov. 28th, 1883.

DEAR SIR,—It may interest you to know that we save exactly 40 per cent. in fuel through using your covering.—Yours truly, W. SANTO CRIMP, C.E., F.G.S.

BELL'S ASBESTOS and INDIA-RUBBER WOVEN TAPE and SHEETING, for making every class of Steam and Water Joints. It can be bent by hand to the form required, without puckering, and is especially useful in making joints of manhole and mudhole doors; also for large "still" joints where boiling fat and steam have to be resisted. It is kept in stock in rolls of 100 ft., from 1/4 in. (Fig. 6) to 3 in. wide, and any thickness from 1/8 in. upwards. Manhole covers can be lifted many times before the renewal of the jointing material is necessary. The same material is made up into sheets about 40 in. square, and each sheet bears the Trade Mark. It is very necessary to guard against imitations of this useful material, and to secure themselves against being supplied with these inferior articles at my price, users are recommended to see that every 10 ft. length of the Asbestos Tape purchased by them bears the Trade Mark.

BELL'S SPECIAL LONDON-MADE ASBESTOS MILLBOARD, for Dry Steam Joints, made of the best Asbestos fibre, is well-known for its toughness and purity, and is absolutely free from the injurious ingredients frequently used to attain an appearance of finish, regardless of the real utility of the material. Made in sheets measuring about 40 in. square, from 1/4 in. to 1 in., and 1/2 millimetre to 25 millimetres thick. Each sheet bears the Trade Mark.

BELL'S ASBESTOS EXPANSION SHEETING (PATENT).

This Sheeting is another combination of Asbestos with India-rubber, giving to the steam user the special advantages of both materials.

The India-rubber Washer is protected from the action of heat and grease by an outer coating of vulcanised Asbestos Cloth, thus producing an excellent joint where expansion and contraction render other materials unserviceable.

This material is admirably suited to steam pipe joints and every class of valve.

Valves made of this material are very durable, as they are not subject to injury by oil.

BELL'S "ASBESTOS LUBRICANT."

ILLUSTRATED PRICED CATALOGUE FREE ON APPLICATION TO

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SAMUEL OSBORN AND CO.,

MANUFACTURERS OF TOUGHENED

CRUCIBLE STEEL CASTINGS

Of all descriptions of special strength and solidity.

ALSO, MANUFACTURERS OF

BEST CAST STEEL FOR ENGINEERS AND MINERS' PURPOSES; FILES; SAWS; HAMMERS; RAILWAY SPRINGS, &c.

STEEL SHEETS AND FORGINGS.

SOLE MAKERS OF

R. MUSHET'S CELEBRATED EXTRA BEST

TITANIC CAST STEEL FOR BORERS,

And of R. Mushet's Special Steel for Lathe and Planing Tools and Drills.

THE STEEL WHICH REQUIRES NO HARDENING.

CLYDE STEEL AND IRON WORKS, SHEFFIELD.

PUMPS FOR MINING USE.

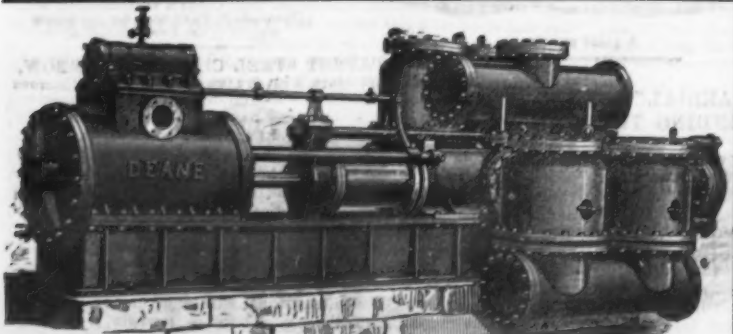
PULSOMETER ENGINEERING COMPANY, LIMITED,

NINE ELMS IRONWORKS, LONDON, S.W.

City Offices—61 and 63, QUEEN VICTORIA STREET, E.C.

EVERY MINING ENGINEER should have the company's profusely illustrated general catalogue, 140 pages, cloth, price 3s., in stamps of any country. Circulars free.

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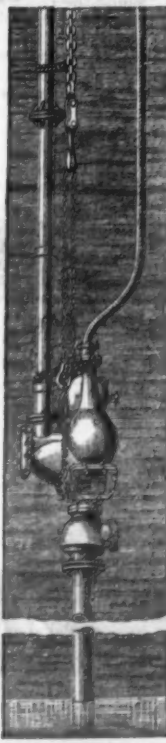
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Original Correspondence.

CANADIAN MINING, RAILWAY, AND GENERAL INTELLIGENCE.

SIR,—For the past month Canada has been agitated, as it will be agitated for the next ten years, by the Canadian Pacific Railway. It has not been an earthquake—the land has still remained the same naturally as when the Red Indian galloped over the plains or trapped in the woods, and sold his game to the Hudson's Bay Company; but it has been in the throes of a political agitation on account of the Canadian Pacific Railway. No doubt all who have mining stocks or railway shares in England connected with this Western continent are cognisant of the fact that the Grand Trunk Railway was not at all pleased with the Canadian Pacific Railway obtaining possession of the Credit Valley, the Toronto, Grey, and Bruce, and the charter of the Ontario and Quebec. The amalgamation of the Great Western and the Grand Trunk Railway gave them almost the control of the whole eastern part of Canada. They got hold also of the North Shore between Montreal and Quebec, and they flattered themselves the Canadian Pacific Railway would have to come to their terms, and be subject to them. How far they have been mistaken the sequel shows. Now the Ontario and Quebec will be running between Ottawa and Toronto in May, and an outlet is open to the Western States by means of the Credit Valley to St. Thomas, and the Michigan Central to Chicago or to Western Canada, by means of the Toronto, Grey, and Bruce, to Owen Sound, the magnificent line of steamers from thence to Port Arthur, and the Canadian Pacific Railway to the foot of the Rocky Mountains.

Inasmuch as the Grand Trunk Railway could not make terms with the Canadian Pacific Railway they determined to oppose them, and run down their credit in the many markets of the world. They succeeded in depreciating the stock of the Canadian Pacific Railway, their bonds, and their credit to such an extent that the Canadian Pacific had to come to Sir John A. McDonald, and ask him to lend them \$22,000,000, and to put off the payment of certain moneys due to the Government, amounting in the whole to about \$30,000,000. Then commenced the agitation. On the one side Sir John A. McDonald, Sir Charles Tupper, and his followers in the House of Commons; on the other side Mr. Blake (the Grand Trunk Railway) and his followers. The battle waxed hot, and it was a question of life and death not only to the railway but to the Government. The vote was to take place on a Tuesday, and on the Friday before the Globe newspaper of Toronto, which is considered the opposition organ, had a bid for the French-Canadian votes. "Why cannot the French Conservatives act for once with their fellow French Liberals in this matter, and then they may be satisfied that their wants will be attended to." These were not the words, but words to that effect. The meaning of it was this:—The province of Quebec wanted funds, and they claimed that as the Government of Quebec had reduced themselves by building railways, which were for the general benefit of the whole Dominion, that they were entitled to be recouped out of the Dominion Treasury. You see the Dominion Treasury has a surplus, and everybody thinks they should get some.

In the House of Commons the faces of the Opposition began to assume radiant smiles. The Cromwellian aspect which had hitherto lowered on their brows changed. That Mr. Blake ever did make an offer to the French-Canadians, or that he was cognisant of the Globe utterances, will never be certainly known, but that the Globe is acknowledged as the Opposition organ gives rise to strong suspicion. On Monday the French had a meeting in room No. 8, and throughout the whole debate on Tuesday afternoon and evening there was great anxiety on the Treasury benches. It was about one o'clock on Wednesday morning that the division bells rang throughout the House of Commons—in the lobbies, in the library, and in the smoking-room—and the whips hustled up their teams. Then in a body the French-Canadian contingent fled in—like Blucher at Waterloo—to turn the battle in favour of Sir John and the Canadian Pacific, and the country itself. No pleasing expression lit up the countenances of the French members; rather sullenly and doggedly did they give their votes. They had no definite assurance from the "Old Warhorse," as Sir John is termed. He was determined they should trust in him, and they were not disappointed, for on Wednesday at three P.M. he met them in room No. 8, and since then all is as smooth as a summer's sea.

Thus ended the battle, and the Canadian Pacific Railway will get their loan of \$30,000,000, and Canada will take as security for the payment thereof all the property of the company and the 25,000,000 acres of land. The security is ample, the road will be finished to the Pacific in about two years, and the whole country will be benefited.

IMMIGRATION TO THE NORTH-WEST.—The immigration this year is likely to be exceptionally large—first, because it is beginning to be understood in England that the country is extremely fertile, that the land can be obtained for nothing, and that the advantages are altogether in favour of Canada as compared with the United States. Our laws are more liberal, as they give 160 acres of land as homestead and 160 as pre-emption, making 320 acres (only three years before you get your deed), and our property is more secure, whereas our lives are not subject to the revolver of every drunken loafer. The Indians receive justice. The advantages as to the climate appear greater as the railway moves westward.

THE CITY OF CALGARY.—This new city is on the foot hills of the Rocky Mountains, at the junction of the Bow and Elbow river, and the passage of the Canadian Pacific Railway: 70 miles west on the track is the new mining camp called the Silver City. What a lot of Silver Cities there are. There is Silver City near Virginia City, in Nevada, another in Montana, and another in Idaho; but this is the first Silver City in Canada. We have lumber, wheat, oats, barley, iron, coal, petroleum, and salt; and now we have found silver, and are going to have a bonanza. Accordingly the Government are making rules, and it is fitting that the *Mining Journal* should contain the first notice, which I send you:—

OTTAWA, MARCH 9.—The mining regulations to govern the disposal of mineral lands other than coal lands will be published in an extra Gazette. They are applicable to all Dominion lands containing gold, silver, cinnabar, lead, tin, copper, petroleum, iron, or other mineral deposit of economic value, with the exception of coal. They provide that any person may explore vacant Dominion lands not appropriated or reserved by Government for other purposes. No mining location or mining claim is to be granted until the actual discovery of the vein, lode, or deposit of mineral or metal within the limits of the location or claim. The regulations deal with quartz, mining placer, mining bedrock, flumes, drainage of mines, and ditches. There are general regulations as to hearing and decisions of disputes, administration of deceased miners' effects, forfeitures, &c.

The general features are based upon the British Columbia Mining Regulations, but are more liberal in most respects. For instance, the British Columbia Regulations for quartz mining provide that a mining location shall be 1500 ft. in length and 400 in width. The Dominion Regulations provide that a mining location shall not exceed 40 acres in area. Leave of absence in the case of placer mining is granted by British Columbia laws to any miner or association of miners for one year provided an amount of not less than \$1000 has been expended in cash, labour, or machinery upon the diggings without return of gold or other minerals in reasonable quantity for such expenditure. As a rule, the fees charged are lower than in British Columbia. The price to be paid for a mining location under the Dominion Mining Laws is \$5 an acre. Not more than one mining location for quartz mining is to be granted to any individual claimant upon the same lode or vein.

Provisions are made by which any person having discovered a mining deposit may obtain a mining location. He is to stake out his claim, and within 90 days thereafter file with the local agent or the Dominion lands agent for the district a declaration setting forth the circumstances of his discovery, and describing the locality and dimensions of the claim marked out, paying the agent an entry fee of \$5, for which a receipt is to be given him. This receipt is his authority to enter into possession, and during the term of one year from its date to take and dispose of any mineral deposit. At the end of a year he may purchase at the rate above named the location on filing proof that he has expended \$500 in actual mining opera-

tions. At the time of purchasing he must deposit with the agent \$50 to pay for the survey, and on receipt of the plans and field notes a patent will issue conveying the land to him, subject to the proviso that a royalty of 2½ per cent. shall be paid to the Crown upon all the gold and silver produced from the said conveyed lands. Provision is made for the assignment of the right to purchase a mining location and its registration. Priority of discovery alone does not give the right to acquire, but a person subsequently and independently discovering who has complied with the other conditions prescribed in the regulations takes precedence of the first discoverer if the latter has failed to comply with the other conditions. The regulations laid down in respect to quartz mining are applicable to placer mining so far as they relate to entries, entry fees, assignments, marking of locations, and agents' receipts.

The size of claims for placer mining is as follows:—For bar diggings a strip of land 100 ft. wide at highwater mark, and thence extending into the river to its lowest water level. For dry diggings and bench claims 100 ft. square. Creek and river claims are 100 ft. long, measured in the direction of the general course of the stream, and extend in width from base to base of the hill or bench on each side, but when the hills or benches are less than 100 ft. apart the claim is to be 100 ft. square. Every claim on the line of a hill and fronting on any natural stream or ravine is to have a frontage of 100 ft. drawn parallel to the main direction thereof, and must be laid out as nearly as possible like the quartz mining locations. If associations of miners discover a new mine claims of the following size in dry, bar, bench, creek, or hill diggings are to be allowed:—To a party of two 600 ft., to a party of three 800 ft., and to a party of four 1000 ft., and to each member of a party beyond four in number a claim of the ordinary size only.

The entry of every holder of a grant for placer mining must be renewed every year, the entry fee being paid each year. No miner is to receive a grant of more than one mining claim in the same locality, but he may hold any number of claims by purchase. Provision is made for the absence of the holder of a mining location or of a grant for placer mining during the close season, also for sworn returns of all products of the grantee's mining lot. Locations for mining of iron are not to exceed 160 acres in area.

These rules appear to be pretty liberal—in fact, 40 acres appear quite a claim for gold mining. However, I suppose it does not make much difference, for, as a general rule, the miner has to sell out to the capitalists, who come in and make millions. This seems to be the way of Nature; the big fish are all the time eating up the little fish, unless the miner becomes a capitalist, and then he is as voracious, if not more. That is the most amusing part of the Irish agitation against landlords, for we have plenty of people who were peasants in Ireland who are landlords here. It is an old saying that "The worst nigger driver is a nigger."

OTTAWA, MARCH 11.

GUINEA COAST GOLD COMPANY.

SIR,—I, of course, accept "R's" assurance that he is simply a bona fide shareholder. I only regret that he did not communicate with me last spring, when I pointed out to the shareholders that it was evident that there was no truth whatever in the original prospectus, and that the directors then knew that the reef was practically barren of gold. If he and some other shareholders had joined me in taking action then something might have been done. We might, at any rate, have saved a few shillings of our money; but it is now too late, as "R." will find out by-and-by, for we shall never see a penny of our money again. In reply to "W. T.," I beg to say that I entirely concur with him in the general proposition that directors need assistance and encouragement, but I qualify it by the addition of the words "when they deserve it." I presume that the remark about "carping and cavilling" is aimed at me. If so, I am sure that "W. T." cannot know all the facts connected with this company, or he would know that I have very good grounds for my dissatisfaction. Let me briefly tell him the facts. The prospectus of this company was issued about November, 1882. It spoke of a reef at Irah that could easily yield 50 tons per day of quartz that would give an average of 2 ozs. of gold per ton. No certain were the directors of this fact that, to avoid, as they said, "sickening delays," they had actually before the prospectus was issued—so they said—made enquiries about, or arrangements for, the necessary machinery. For about 14 months the shareholders got little or no information as to what was being done at the mine, but when the report for the annual meeting in 1883 was issued it said, that in consequence of various circumstances which were detailed, nothing, or next to nothing, had been done at the mines during all these months, but it did not hint at the fact that the directors had, notwithstanding what they said, really ascertained that the reef was barren, and that they had resolved to abandon it. That they should abandon a barren reef is not surprising, but that they should have bought it, trusting solely to the vendors' agent's statements, and without taking as much trouble to ascertain the truth of these statements (and they had plenty of time to do so before parting with the money they paid for it) as any one of them individually would have taken in buying a park back for his own use, is surprising, and, I venture to say, positively fatal to their reputation as men of business. What thinks "W. T.?" Does he consider that such directors deserve assistance and encouragement? But, although directors may be bad men of business, they may still be candid and straightforward—ready to confess their faults frankly, and making a clean breast of the past, leave themselves in the hands of the shareholders to say what should be done in the future. What does "W. T." think of the conduct of the directors of this company as regards candour and straightforwardness? Let me show him some facts, and then let him say.

I have already referred to the report presented to the meeting held on March 5, 1883, as giving no intimation of any intention of abandoning the Irah mine. At that meeting, too, absolute silence was observed as to such intention; indeed, a perusal of the report of the meeting will convince any candid person that the directors by what was then said, intended the shareholders to believe that they meant to persevere in working at the reef. Silence was carefully maintained for another six months, but on Oct. 10 a circular was issued, in which the directors say they think the time has arrived when they can give the shareholders interesting information, and they beg to give an account of the operations that have been going on at "the mines" since the last general meeting. The circular then gives extracts from letters from the manager. The first is dated April 20. It says—"The reef crops out boldly at surface in drifts one and two, and in the shaft it is respectively 10, 6, and 8 ft. wide." There are several other extracts, but I omit these, as they are not material. The circular then goes on to say that the manager has given effect to the directors' instructions, and has attacked "the reef" boldly. There are other statements, but suffice it to say that from beginning to end of this circular there is absolutely nothing to show or lead to the belief that "the reef" is any other than the rich reef on the Irah property, to work which and which alone this company was formed. On Nov. 7 another circular is sent out, in which the directors speak of further encouraging advices from the "mines," and they give the result of some assays of quartz alleged to have come from the reef, as to which I may observe in parentheses that they do not at all agree with what Mr. Sweet said at the last general meeting, for he said he thought the quartz would yield 18 to 20 dwts. to the ton, whereas the reported assays give three times that. Then comes the report issued by the directors in February last, preliminary to the general meeting held on Feb. 25. This report commences with an entirely untrue statement, for it says that at the general meeting in 1883 the directors laid before the shareholders a full statement of the circumstances, &c. What are the facts? Omitting for the present to notice that they had then abandoned, or had arranged to abandon, the Irah reef, I may say that they had at that meeting withheld—and no doubt deliberately—the significant fact that Capt. Burton's samples of the reef gave no such results as they dared to publish, and that the hydraulic process which had, on his recommendation, been tried, had fully demonstrated the barrenness of the Irah property in gold. Surely these were not such very unimportant facts, and a board that withheld them can hardly claim with truth to have given "full information or expect much encouragement" in such duplicity.

But to return to the report; it goes on to say that "immediately after" the last general meeting the vendor of the Irah property, anxious to make "every reparation" (i.e., "every reparation," but the only one the company had a right to expect from an honest man—a return of the 75,000*l.* he had received for a thing that had no actual existence) had placed at their disposal two other properties, and that they had selected one called Insamankao. Now, observe it is not until the expiration of about 12 months after the directors had abandoned the one property and began to work the other that they give the shareholders—whose paid servants, as you, Mr. Editor, well point out they are—any, the slightest intimation of what they had been doing all that time. But there is not merely this suppression of most important facts: there is a carefully planned system of deceit which in all my experience of public companies, and this is not a small one, I have never seen equalled. It is really astounding that men who claim to be gentlemen, and men of honour, could stoop to such meanness. It is perfectly clear that the circular of October last was carefully and deliberately worded, so as to make the shareholders believe that "the reef" therein spoken of was the original Irah reef. What other reef had the shareholders ever heard of in connection with this company? I ask "W. T." whether it is possible for any honourable man to define duplicity and falsehood such as this, or "encourage" such directors? I was puzzled at the time that Mr. Peddie resigned to account for his resignation, but I now quite understand it; no doubt he could not bring himself to join the rest of the board in the tortuous policy they had determined to follow. I can but express my astonishment and regret that any clergyman could be willing to go on the board, and take part in the despicable deceit with which it has insulted its shareholders.

But I have to accuse the board of another uncertified statement, uttered through their Chairman at the last general meeting, and I will prove it from their own documents and admissions. A reference to the report presented at the last meeting will show that the directors say immediately "after" the general meeting in 1883 they did so-and-so. Now, a reference to the circular of last October will show that the manager, on April 21—i.e., about six weeks after the general meeting—speaks of a shaft sunk on the reef and drifts running from it. Now, it takes three weeks to reach the Gold Coast from England. How much longer to reach the mines I do not know; but, anyhow, if the directors' statement be true, there could be barely three weeks after their messenger arrived at the mines to arrange for moving, and actually moving, the plant and tools and sinking the shaft and running the drifts. "W. T." says the distance between the mines is not 22 miles. The directors, however, say it is 100. Let "W. T." refer to the authorised report of the last meeting, and he will see that what I say is correct. I do not believe it is possible, whether the distance is 20 or 100 miles, that all this could have been done in the time; but, even if it was, it is certain that all the necessary arrangements must have been made before the meeting, so that the statement is essentially false. The reason for this duplicity is not far to seek. The directors knew full well that if the truth were put before the shareholders their directorships would not have been worth 24 hours' purchase. Therefore, they kept silence; and, like desperate gamblers, resolved to risk the small remaining balance of the company's funds in a fresh speculation, hoping that it would turn up trumps, and that success would be accepted by the shareholders as an atonement for the deception that had been practised on them.

This, as I have already said, was a very safe game for the directors for as long as they can keep the company on its legs so long will they continue to draw their salaries, whether the venture succeeds or fails. I should like to ask the Chairman of the last meeting how he can reconcile his statement that pending "delicate negotiations" with the vendor had prevented information being given to Mr. James with his further statement that no work was done on the property until it was "absolutely agreed" to be handed over to this company? I cannot imagine how he can do so, for work was commenced on the reef at least as early as the beginning of April, and the refusal to give information was months after that. I do not doubt myself that the excuse for withholding the information had no foundation in truth, but was a simple falsehood, besides it was withheld all the time between March 6, 1883, and February, 1884, and is it possible that "delicate negotiations" could have been going on all that time? This phrase "delicate negotiation" amuses me, disgusted though I am with the whole business. I should very much like to know how they were managed. I can form no idea how a man can act as vendor and purchaser at one and the same time, especially if as purchaser his interest is opposed to his personal interest as vendor. How could Mr. Johns as member of the syndicate negotiate with Mr. Johns, as Chairman of the company? Perhaps some one can throw some light on this "delicate" question. It fairly puzzles me; or perhaps Mr. Johns can be induced to give a "full" and true history of the inception (I believe that is the correct word for these transactions) of this company, and of these "delicate negotiations." I think I might promise him that the work would be a great commercial success, and I think I might safely venture to predict that it would afford useful hints to vendors who have good mines to sell, and also to the public, who are so often asked to contribute the necessary funds to work these valuable properties. Under the circumstances does "W. T." still think that the directors of this company deserve encouragement and support. If they do in what? P.

Brighton, March 31.

WEST AFRICAN GOLD FIELDS COMPANY.

SIR,—I thoroughly sympathise with your correspondent "P.," who writes from Brighton about the Guinea Coast Gold Company. These companies are called gold mining companies, but my experience of them is that they are only so in one sense. The gold obtained is by the directors, and the mine out of which they get it is the shareholders' pockets. Though I am lucky enough to have escaped the Gold Coast Company, I had the misfortune to allow myself to be deluded by the statements made in the advertisements of the West African Gold Fields Company, and have suffered for my credulity. I think it is a duty, in the interests of the public, to keep attention fixed on these companies, and those who get them up and manage them, and I trust you will allow me to throw a little light upon this one, which it is the more important to do, inasmuch as the directors are (some of them at least) connected with other mining companies on the Gold Coast, and also propose to form new ones.

When they were trying to get money from the public for this undertaking they told us that they were about selling a part of the property for 40,000*l.*, and that dividends would be earned in six months' time on the whole capital. This was two years ago nearly; during this long interval they assured me (in letters I still have) that I might rely on the sale stated as a fact—in fact, that I had no business to doubt it. Having found out that they had only taken amongst them 700 shares, I expressed my anxiety at what I considered looked like a want of confidence in the splendid prospects they announced to us. They replied that they "intended to increase their holdings." Since then I have tried in vain to get from them a statement of what they had done with our money, and it was only a few weeks ago that I succeeded in getting any information.

I now have the report before me, and I no longer wonder why this information was kept back from me as long as possible. This is what the board has done for the shareholders and for themselves. They have spent all our money; they have made no sale for 40,000*l.*, as stated, and no dividends from gold washing or any other source. They got from the public on the faith of these statements about 6000*l.* It might be supposed that none of them having been fulfilled, these gentlemen would have thought it right to make up the money amongst them and return it to us; but not only have they not done this, but they actually have the assurance to claim 1800*l.* of it for their services as "directors' fees!" I find also such items as 250*l.* to Capt. Cameron, and some one else as—"per agreement"—543*l.* cash not accounted for, and the report concludes by hoping that "existing shareholders" will trust them with more money.

Very likely indeed I should say. There is, however, a matter which I wish to call my fellow-sufferers attention to, which appears to me to require sifting out if money is wanted just now to work the company. I have it from the office of the company that the directors had taken up only 700 shares amongst them, value 1400*l.* But their

qualification was 250 shares each, and as there were seven of them when the advertisement was issued we have 1750 shares representing when paid up \$5000. due by them to the company. What has become of the 2100? The difference between payment in full on 700 shares and 1750 shares. They took law proceedings against an unfortunate shareholder who had not paid up his calls. Have they paid up their own on their qualification? If not, have they got the qualification required by the Articles? If they have, how do they get it.

I have written to them for information on this point, but cannot get an answer. I think it most important, for though I have no doubt there is gold in the property (as Capt. Burton says so), I do not consider that we are reduced to depending on the gold alone for recovering our money, but that after failing to make good the statements they made to us, on the faith of which we gave our money, it is to the directors personally we should look to for a return of it. I am quite ready to try the matter out legally, and if any other shareholders should be of the same mind I shall be happy to co-operate.—*Paw, April 1.* S. W.

A NEW EL DORADO.

SIR.—A new gold field has been discovered in Western Australia by a well-known mining engineer, late of Ballarat, which is likely to prove of considerable importance to advance the interests of that hitherto little known colony. This valuable discovery was made by a gentleman who is the managing director of the Western Australia Jarrah Timber Company, on a quartz hill within a few miles of their concession. On this hill, which rises to a high altitude, there is a bold outcrop of a big quartz reef, which appeared so favourable in its appearance that the discoverer determined to send a fair sample of the stone to the Ballarat School of Mines for treatment, which resulted in the yield at the rate of a little over 1 oz. of gold per ton. The discoverer at once secured 100 acres of freehold, to include this valuable mine, and a syndicate is being formed to purchase and erect an efficient crushing plant forthwith, to develop the mine, which is favourably situated within 40 miles of a seaport, with a good road, abundance of water, fuel, and mining timber, and in a beautiful climate. Large quantities of auriferous quartz are in sight, and available for immediate crushing, and levels can be run in on the lode that will give over 600 ft. of backs to work above tunnel level. It is intended to at once erect a 20-stamp mill or more, as there is an ample supply of quartz to keep a large crushing plant in full operation up to 100 tons of ore per day. It is estimated that, commencing with an output of only 50 tons per day a profit of from 20,000l. to 40,000l. a year can be made. I can personally vouch for the veracity and integrity of the gentleman who has made this important discovery, and can confidently invite anyone desirous of investing in a profitable gold mine to investigate the merits of this, to whom I shall be happy to give information.

THOMAS CORNISH, M.E.,

Author of Gold Mining, its Results, and its Requirements, &c.

FRONTINO AND BOLIVIA MINES.

SIR.—Everybody, after a careful perusal of the two last reports received from these mines, must agree that I was more than justified in proposing most strongly a change in the management, without which I fear there is no hope of any improvement in our property, but that it will continue in its downward course till closed only by liquidation. Messrs. R. and F. White, the managers, have had uncontrolled management, with almost unlimited finances at their disposal for many years, and although there is no doubt we have a good property, as the returns of gold (about 5000l. monthly) proves, all is swallowed up in expenses; in fact we are now working at a loss, and our shares have naturally gone down in value from some 6l. per share a few years back, to their present price of a few shillings.

Our directors seem to be entirely under the power of Mr. Robert White (who manages our mines by remaining in England), and seem to have no voice or control at all. The Messrs. White used to be very fertile in promises of glorious results to be realised in a short time; but even these promises are not now made, and the last report is as bad as can well be. The shareholders will have but themselves to blame if by their apathy they allow a glorious property to be worked thus only for the benefit of the officials and the employees, and eventually lost altogether.

GEO. P. SHEARWOOD.

Upper Norwood, April 3.

VICTORIA AND CALLAO BIS.

SIR.—Do the directors of the Victoria Company ever expect to have it in working order, or can you inform me when do they intend to commence operations? Up to this time no work of any consequence has begun, nor has any of the machinery yet reached the property. Yet some time past I read a short article in the *Mining Journal* which must have led the shareholders in England to believe that a great deal of work was being done, and even to have expected remittances in a short time. It is unfair that over-confiding capitalists should thus be disappointed, for it is in exactly the same way that the shareholders of the unfortunate Callao Bis are led to believe that their money is being judiciously spent, while like that of the Victoria the reverse is the case. If there is anything to be done by these two companies the management must be at once changed, for change of officers is sometimes necessary, even when incapacity is their only fault, and apart from the question of whether there are other evils which demand immediate reform. There is no doubt that the Victoria property is really a valuable acquisition, and it is certain that the force of its merit will make its way, and that Mr. Danby deserves the thanks of the company for placing it in their way; but to have its value brought to light it must be properly worked and managed, and this is what Mr. Danby will never be able to do. It is also here and there hinted that the company intends to engage the services of the renowned (in Venezuela) Mr. R. M. White as accountant. "Fellow feelings make us wondrous kind," it is said. This may be so, and Mr. White may be a very good companion and friend to Mr. Danby, but my advice is that on no account should the company make such an appointment—a thoroughly competent person should be sent out from England for the Victoria Company.

It is clear that if there is success for Callao Bis the advice of the late manager must be made use of, and if Mr. Volvieder had done so ere now, by this long-hoped-for result must have been achieved, but with a waste of funds as even accompanies this resolution we are indeed threatened to be starved out for want of funds.

C. G. C.

Chile de Guayana, Dec. 12.

A DISCURSIVE VIEW IN THE INTEREST OF MINING— No. X.

SIR.—My last letter of this series concluded with a comparison which may be considered odious; it is nevertheless not only relevant but true. If the stern necessities of fate demanded the acceptance of one of two alternatives in regard to clap-net mining it cannot be said that a wise or prudent choice is made by those that embark therein, such alternatives being comprised in and determined by the proposition, "To be or not to be," identified therewith. In the alternatives of these transparent schemes there is an almost certain evil and absolute negative good. To accept the alluring conditions is to imperil personal pecuniary interests, whilst to decline is to conserve them, except on the part of those few initiated in the mysteries of the occult art, privileged and empowered to operate and influence the mechanism of magical evolutions, which fatally intoxicate ill-equipped and ill-informed intellectual combinations. It will be readily seen that my allusions are to recently incorporated fraternities of abnormally high pretensions, soaring extensively beyond the limits of practical precedents or rational theoretic conclusions consonant with the basal facts. Mining objectively is in its primary sense and significance what it ever has been and ever will be as applied to the winning of material wealth from its rock-bound and rock-contained recesses; but the means employed, aided by enlightened practical experience and higher intellectual attainments from scientific auxiliary cognate sources, which tend to inform the judgment, qualify theoretical formulas and rational conclusions of practical intent, will be constantly improved, commensurate with the requirements of progressive necessities, if permitted to act unrestrained by prejudice and extraneous innovations in their adaptation not only to existing requirements, but to the discoveries and achieve-

ments of science and art in the useful and profitable rendering of mineral products commercially valuable, which are not now known to be of any utility. If such be the industry to which I invite the most serious attention, in what way and in what manner are its interests best promoted. An impartial considerate view, critically investigative of the subject matter of this question cannot fail to be of advantage to those especially more immediately interested in its fortunes. I have already stated in that mining as to its ostensible primary objects is what it ever has been and ever will be; but subjectively it is allied to change, through which it is what it has now become and may yet be made to be and represent.

When things come to their worst it has been said, "they must mend," which is true in the light of the axiom that "nothing remains stationary," but the difficulty is, it appears, to know when that point has been reached. We had hoped that the some of inexcusable transparent blunders on the one part, and systematic nefarious design on the other part, had been sealed long ago in certain schemes of modern historical notoriety; but history in this, as in so many other respects, repeats itself, and evidently with no loss of prestige or diminution of patrons. If, according to Hudibras, "the luxury is just as great, of being cheated as to cheat," the difference resolves itself into one of degree and not of kind. If this conclusion is not deducible in all cases to which the above poetic epigram is applicable, it appears to be in respect of the class of mining to which it is referred, as the propensity—the ruling incentive in either event is the same—an actuation from morbid inordinate desire. Vanity has something—nay, much to do with its prompting; the disposition to be identified with something surpassingly great, something that makes a noise in the world; at least that part of it which constitutes the realm of arbitrarily limited perception.

Balloon and sky-rocket mining have more attraction and greater captivating influence and power than the soundly meritorious and most forcibly evidenced fundamental sources of the almost limitless metalliferous wealth can inspire; but because it is not on the surface of the soil, but has to be dug, it is lightly, if at all, esteemed. What a pity! It would seem that to accommodate such caprice, the pent-up imponderable forces in the internal abysses of this rock-bound planet do not break forth, rend, and give its comparatively attenuated and fragile sheet assunder, reverse the order of Nature, turn the several sections of the river and bottom side up, or, better still, inside out, that their coveted contents may be exposed in convenient situations superficially, in order to realise the ideal of modern ideas in contravention of Nature's economy and the established harmony of her systems. But so long as it stands recorded in respect of human condition and estate, corroborated by experience, that the necessities of the race shall only be requited by labour, more pertinently expressed as of old—"In the sweat of thy face shalt thou eat bread"—so long will the mineral treasures of this mundane sphere remain to be extracted from their deep-seated natural recesses, to be successively the reward of diligent application intelligently directed conformable to the laws which govern the system of their being.

Iron, Nye County, Nevada, March 11.

ROBT. KNAPP.

GOLD COAST MINING COMPANY.

SIR.—At the general meeting of this company, held on March 25, and reported in last week's *Mining Journal*, I asked the Chairman whether the board had come to any more definite decision on the question of the appointment of a properly-qualified person as consulting engineer to the company than was expressed in his circular, as this seemed to be the most important point for consideration (inasmuch as it was the main cause of the dismissal of the old board, and the main object of the election of the new one). The Chairman (Mr. Maynard) replied that he quite agreed with me, and that the only reason why he had not spoken out more decidedly on this point in his circular was that he had been anxious to avoid saying anything that any of his colleagues might not fully concur in.

Capt. Molesworth then said that he also quite agreed with me, but that he thought the most important thing was to hear what Mr. Haughton had to say. I venture to point out, Sir, that the last part of this statement flatly contradicts the first; and I maintain that what Mr. Haughton may have to tell the board will not be of much use to them unless they are advised by some competent person.

Wilton-place, April 2.

ALGERNON JOY.

HYDRAULIC PUMPING APPARATUS.

SIR.—It may interest some readers to know that the hydraulic pumping arrangement described and illustrated in the *Mining Journal* of March 22 is not new. In the year 1866 West and Darlington not only patented the use of an hydraulic main and plungers for pumping purposes, but also a main in combination with suitable plungers for counterbalancing pump-rods, changing the angles of reciprocatory motions, and transferring power to points distant from each other underground. In 1867 the transfer of power was effected at Wheal Phoenix, Liskeard, under the superintendence of the late Mr. West, at which mine the hydraulic apparatus worked for a number of years without let or hindrance, in every way answering satisfactorily. Subsequently the hydraulic apparatus was employed for pumping purposes at the Von der Heydt Colliery, on the Rhur, Prussia, where the pumpwork was inclined at an angle of about 15° to the horizon. The hydraulic bar with its main and plungers was also employed by Darlington as a substitute for Kley's gear usually applied to slow speeded jiggling machines.

March 28.

B. MCN.

NORTH MEXICAN SILVER MINING COMPANY.

SIR.—With so many bogus mines put before the public, the prospectuses of which show to a practical miner that those launching the company had not the slightest knowledge of mining, it is refreshing to turn to a prospectus which, on the face of it, shows that it is not formed to sell the public into giving a large price for a worthless mine. I refer to the North Mexican Silver Mining Company, which bears upon it the stamp of genuineness in every line. The owner has acted like a miner. He has evidently spent all his money in searching out whether the mine is good or bad, and not wasted it in building machinery, which looks very pretty on the surface, but is of no manner of account to an experienced miner unless the mine contain mineral of sufficient value and importance to justify the erection of it. As a miner I can well understand how the vendor has clung to his property to the last moment, and still clings to it. Why? Because he believes in it. This is shown by the fact that he only asks for the loan of money, to which he offers those advancing it an interest in the profits. This is legitimate mining, and one or two undertakings of this kind do more good for mining than tongue can tell. It makes the public think that there are profits to be made for mining.

All old miners knew of the riches of Mexico. It is undoubtedly the richest mineral country in the world, and now that the railway has intersected it there are hundreds of mines in that country which will pay large dividends, which without the railway could only be carried on at a loss. As an experienced miner, I can only advise shareholders never to pay into companies where large sums in cash are asked for the purchase of the mine. A true miner always believes that his mine will produce far more money than ever he can sell it at.

WORKING MINER.

BRITISH MINING ENTERPRISE IN MEXICO.

SIR.—The wonderful rise in the price of the United Mexican Mining Company's shares is attracting public attention to Mexican mines, and now that railways have been introduced into that country it is difficult to contemplate the amount of riches which will be brought forth by Yankee enterprise. Every miner I have heard of who has visited Mexico has come back with wonderful tales of the most extraordinary riches of that country, which the absence of railroads alone prevented being profitably worked. The evidence adduced by the North Mexican Silver Mining Company of the mode of working render it remarkable that any silver at all could have been sent to the market with profit. If it paid to work mines under such conditions, what profits would be made by the introduction of the improved machinery now in use. The tales told of the wonders of Mexico are marvellous, but are they to be believed? Silver coming from Mexico in such enormous quantities stamps all the tales as true.

It is very significant in Mexican mines that all Mexicans talk of mining as a business, and that it is of common practice there for a to be stipulated that the moneys advanced to open the mines shall be paid back out of the profits before the owner of the mine gets anything. This is as it should be, and it only shows what rich mines there are. I observe that this salutary principle is introduced in the North Mexican Silver Mining Company; a mine, if anything at all, ought to be able to do this. All interested in mining should support any undertaking disposed to carry out these legitimate principles.

J. L.

THE CELEBRATED POLGOOTH DISTRICT.

SIR.—Being in Cornwall last week, and in the vicinity of St. Austell, I took the opportunity of spending a day at the Great Wheal Polgooth and Tregontrees Mine, having heard that the prospects had very materially improved of late; and knowing the district I felt anxious to ascertain the exact position of affairs.

Arriving at the mine, which is about 2 miles from St. Austell, I found the 48 heads of stamps at full work stamping the tinstone from the Great South Lode with very good produce, but my opinion is that if the company only sunk the shaft deeper they would be able to stamp richer tinstuff, and at the same time in larger quantities. Men were busily engaged getting ready to place in position the new stamps called Scholl's, which has been talked about so much of late for its extraordinary power and economy, and when set to work it is anticipated larger returns of tin will be made. These new stamps will, I was told, be set to work in about another month.

Leaving this part of the mine, and walking over the hill, I found that during the past two months the agents have been busily engaged opening up a lode on the north side of the hill called Mulvra, and good progress has been made, the end being driven into the hill about 18 fms. This lode is a big champion lode, and the quality of the tinstone being broken from the end is everything that one can wish for the production of a vast body of ore.

The samples I examined from the great pile at surface were composed of green peach, spar, tin, &c., rocks being brought out of over 3 to 4 cwt. each, and so soon as Scholl's stamps are erected this rich lode will be returned to market at a very large profit, and when further opened up, which can be done with great rapidity, the shareholders may look hopefully forward to a turn of the scale. I would here mention that this Mulvra lode will virtually open up quite a new mine, which is a most important fact to be considered. Referring to this lode, I recollect that some time ago one of your correspondents urged upon the company to explore their lodes north, and this one in particular. I think, if my memory serves me, it was Capt. Thomas Parkyn, of Roche. This discovery is another instance of what may be expected by working virgin ground at shallow depths, and where lodes are known to exist. When this principle is carried out I feel sure that capitalists will turn their attention to the working of shallow mines, and thus have a revival of the mining industry, which we cannot expect by working deep and worn-out properties, that are only food for the promoter and engineer.

When we consider the vast amount of tin that has been returned by the mines surrounding the Tregontrees property, it seems impossible that nothing but a great and lasting property can be opened up. I had the pleasure of being shown over the property by the Chairman of the company, Mr. R. B. Fastnedge, who seems to take great pains that everything is carried on in a proper manner and with the greatest regard to the interest of all concerned. In conclusion, I must congratulate the shareholders on being possessed of such an undoubted valuable property.

H. C.

London, March 31.

ECTON, AND THE BURRA BURRA MINES.

SIR.—Good wine needs no bush, and if the success of the Ecton property is assured the shareholders may well feel content. Copper is, however, exceedingly low, and to afford any considerable amount of profit the Ecton ores should be rich and abundant enough to be raised, dressed, and sent into the market at a cost not exceeding 40l. per ton of metal. In the interest of home mining it is hoped that this will prove correct. The Ecton deposits, however, do not correspond to those which were met with in the celebrated Burra Burra Mines. The ore at that place was mainly found at the junction of two powerful contact lodes, one of which bifurcated into a serpentine, the other into thinly bedded non-fossiliferous limestones, the lodes in both rocks being crossed by several cross-courses. At the intersection of these cross-courses minor deposits of ore occurred. From the surface to a depth of 60 fathoms blue and green carbonates as well as the red and grey oxides of copper were found, while from the 60 to the 70 fathom level the single sulphide of copper exists. At 90 fathoms from surface and downwards yellow ore or copper pyrites was met with. In no case was the ore localised in chambers or pipes in the country rock, neither was it confined to a rock-sided basin. The ore was accompanied by vein stones of various kinds from soft clay to clay indurated into Jasperite, while oxide of iron, pulverulent and compact, as well as quartz and carbonate of lime abounded. The water which flowed continuously into the workings from the two veins amounted to some 30,000 gallons per hour.

March 31.

E. B. B.

CATHEDRAL CONSOLS MINE.

SIR.—Being a large shareholder in this mine and anxious for its success, I requested Capt. Trevena, Wheal Bassett, to inspect it, and his report is more favourable than I expected. He concludes: "I feel sanguine in a short time it (the mine) will lead on to success, the money that has been already spent on this property has only taken you to the depth where you might expect to meet with ore. As these lodes were worked to about the 70 by former adventurers, and I find it was the opinion then (by looking at some of the old reports of some of our most experienced agents) that by sinking some 20 or 30 fms. deeper, they were sanguine of having a good mine. You have arrived now at the depth where, by a little further outlay, the opinion of those old agents, and my own, are likely to be realised." I always had a good opinion of the mine, which the report now in my hands confirms, and I have hoped that with a little more perseverance and at no very distant date from this time we shall be rewarded.

Blackheath, April 3.

JAMES LADY.

POLCREBO TIN MINE.

SIR.—In all probability no mining property was ever at first approached with greater distrust than this. The fact that miners reported that a lode worth 25l. per fathom for tin was discovered just before the mine was stopped added to the doubt rather than otherwise, and caused it to be looked at with extreme caution, as it was most unusual to run away from a discovery at a time when tin was selling much higher than the present price. No greater caution could have been exercised than was taken in this case, and it was most gratifying to all concerned in the present company that the men's statements were found correct.

The first meeting was held about eighteen months ago, since which the Highbarrow shaft, which is about the centre of the sett, has been sunk from the 17 level to the 40 fms. level below adit, and a level has been driven at the 30 about 120 fms. on the Great Works' lode. At this level, 30 fms. east of Highbarrow shaft, a new lode has been intersected, the run of which is a few degrees north of the Great Works lode, and right through the sett for 450 fms. in length, and of a value in driving upon it varying from 17l. to 30l. per fathom at the present low price of tin.

Two cross-cuts are now being put out north from Great Works lode, in the 30 and 40 fms. levels, to intersect the new lode further west. These intersections will take place in about another fortnight, when the exact distance from each level throughout the mine will be ascertained, and in like manner at all the upper levels cross-cuts will be driven, and thus a mine of considerable magnitude will quickly be opened by driving east and west at each level, from the adit to the 40 below it. This new lode will give backs for the entire length of the sett from east to west, a distance of 450 fathoms, and from surface to the 40, below adit, while the Great Works lode runs for 250 fms. through the sett, with backs for stopping from the 17 to the 40, upon which no stopping has yet been done; and in different parts of the 30 there is a lode worth from 25l. to 30l. per fathom.

These two lodes give nearly 24,000 fms. for stopping, and if of only

one-half the value where they have intersected and driven upon it will be seen that many years working on a good scale will not require the shaft to be sunk for keeping up the supply for considerable stamping-power. There is yet another important lode to be cut in driving at the 30 east—the Great Wheal Worthy, about 15 to 18 fms. farther east than the present end, and which runs through this sett for a distance of 200 fms., and is standing entire from the adit to the 40, while above the adit it has been rich in tin in this sett, and was a largely productive and dividend-paying lode in the mine of that name, and fully expected to be as productive in Polcrebo sett.

City, April 3.

M. N.

WHEAL BENNY, AND NEIGHBOURING MINES.

SIR.—It is now 25 years ago since it was stated that a tin bonanza would be discovered in the formation (killas and granite) immediately to the west of the famous Devon Great Consols, which at that period was the richest and most profitable copper mine in England, and continued to be so for four or five years afterwards. Thence going west toward the granite upheavals the killas became thinner by denudation, and the granite crops up 2 miles west of Wheal Benny, which is now opening up a splendidly defined lode varying from 8 to 20 ft. wide, undoubtedly the master lode of the district. This lode runs from east to west, with a course of about 10° south of west and north of east. The dip of this lode north is about 68°, and the two cross-courses intersecting seem to ensure the favourable opinions expressed by every agent and mining engineer who has seen it for a grand mine.

The water-power available is a stream running from south to north through the property, which after draining the hills in its course gives a capacity of 1,800,000 gals. per 24 hours with a fall of 76 ft. There is also the inexhaustible water-power of the River Tamar, which has been granted by the Duchy extending for $\frac{1}{2}$ mile in length, and to the Devonshire shore. Such facilities for working it may be safely said are not surpassed, if equalled, by any mine in the two counties.—Palmerston Buildings, April 2.

B. E.

WHEAL BENNY.

SIR.—The statements I have made to you I believe, yea, know to be true, and am prepared with the needful proof when the proper time comes. In 1872 six of us agreed to take a lease of some freehold fields at Latchly, in the parish of Calstock, of Mr. S. Lang, for which we were to pay him 100l. down in lieu of rent, the said 100l. to be allowed back out of dues. Four of us paid at that date our four-sixths of that sum. One, Mr. Perry, of Deer Park, had his part given to him in consequence of his allowing the grantor to shoot over his extensive estate, so that Mr. S. Lang really received five-sixths of the 100l. But he never gave us the lease. In 1880, as I have already stated, I demanded the repayment of my money, with interest, as Mr. Lang had received our money, and failed to hand us the lease, or a new lease for 21 years. Originally, as mining was dull, and starting mines difficult, for the first seven years we were not expected to work, and not bound to work in any particular way. Mr. Lang and his adviser choose not to give us entirely a new lease, but produced one dated 1872, to which an addition of eight years was made. If the stringent clause in the new part is of any value at all it cannot come into operation until the first part of the lease has expired. Not getting any lease in 1872, or even a tracing of the fields, I went to the Duchy Office at Liskeard, and got a tracing from a map sufficiently large for my purpose. I found the fields were comparatively small, and worthless for mining purposes, and mixed up two sets of Duchy property—Wheal Benny and West Wheal Williams. I applied at once for Wheal Benny, but finding the length on the course of the lode comparatively short, and that the adit in Doidge's Wood was just in the midst of Wheal Williams, I applied for the two sets, but had to make a selection, and we took Wheal Williams, as having about twice the length of lode as Wheal Benny.

We have held West Wheal Williams ever since. With the late Capt. Edward James, of Latchly, and another gentleman we took up the Wheal Benny sett, and opened it out and cleaned up the adit, and made inspection easy. But Capt. James's health beginning to fail he did not apply for a renewal of the license in time, and it was granted to another. Mr. John Wright, late of 2, St. Michael's House, St. Michael's-alley, Cornhill, informed me that he told Mr. E. Brewis first about the sett at Wheal Benny, and Mr. Brewis agreed to take out a license from the Duchy Office in their joint names; but took it out in his own, leaving Wright entirely out in the cold. My sett—for I have bought all the others out—joins Wheal Benny on the east, and is most all Duchy. Understand that when I am writing I perfectly well know what I am about, as I have been familiar with all matters appertaining to these setts for many years. I have assisted Mr. Brewis and Capt. Cocking in many ways from the beginning, and they have known perfectly well my position with regard to the freehold.

I have written Sir C. W. Craufurd and offered to meet him anywhere before his last visit to this neighbourhood, but he has hitherto declined and avoided a meeting; moreover I have offered to come to any arrangement that would conduce to the complete and ample opening up of what I have long held to be the best mining speculation in the West, or almost anywhere. Eight or ten years since one of my partners knocked off a bit from a big rock lying on the surface at Wheal Benny, and Capt. Parsons, then of Okel Tor, tried it with the result that it gave nearly quarter-part tin. Later on Mr. Jenkins, of Callington, tried a stone for me, and it gave from 700 to 800 lbs. of tin to the ton of stuff. These results I communicated to Messrs. Brewis and Cocking, and for all my kindness to them they have acted in the matter in a way which, to say the least, is most ungentlemanly.

H. REYNOLDS.

Calstock, April 2.

WHEAL LUSKY.

SIR.—A very great improvement has taken place in this mine within the last few days. The lode is 6 ft. wide and ore throughout. My opinion always has been that the adit level of Wheal Lusky will prove as rich as the adit level did in South Caradon 40 years ago. The lodes in Wheal Lusky are parallel with those in the Caradon Mine, and the ore very rich in quality. The shareholders, who are chiefly local gentlemen, are quite alive with the news, and they think they are opening up a real good mine, and they have water sufficient for every requirement. Wheal Lusky Hill rises from the river at an angle of 40°, and there is every reason to believe that large quantities of ore can be made marketable above the adit level. Taking the rise of the hill and the river of water into consideration, it means many thousands of pounds advantage to the shareholders.

The mineralogical position (killas and granite) is everything that can be desired. The facilities for working this property are very great, and I have every reason to believe immense profits will be the result in the development, which I estimate will at least approximate to the famous South Caradon Mine to the west.

Callington, April 2.

JNO. BUCKINGHAM.

YEOLAND CONSOLS.

SIR.—As a shareholder who has personally visited the above mine and taken considerable trouble to ascertain the position and prospects of the company, I was much surprised at reading the letter of "J. U. S." in last week's *Mining Journal*. Whether his remarks are dictated by ignorance alone it is for others to enquire, but the sales of ore made since August last alone show the falsity of "J. U. S.'s" statements, and as his letter may have alarmed shareholders unable to verify the true state of the case for themselves by visiting the mine I trust I may be permitted to say a few words in reply.

As regards the statement that only a pretence of work was made a week or two before the annual meeting of the company. I happened to be staying in the neighbourhood of the mine in October last, and saw myself upwards of a score of men hard at work, and was informed by people resident in the neighbourhood that such had been the case for some time. I was thoroughly satisfied with the work being done and the proposed methods of carrying it on. The so-called "visionary system of pipes" appears to me a most practicable one, and there can be no doubt that this principle of applying the water-power is a great improvement on the original

idea. I have it from a source rather more reliable than "J. U. S." appears to be that the greater part of such pipes are now actually on the mine, also two useful engines, and that a large water-wheel is in course of construction and nearly completed. Additional frames and floors have been recently laid out and a pulveriser and additional stamps purchased and are on the mine. I think, therefore, it is self-evident that the directors cannot up to the present be charged with having failed to carry out their promises made at the last meeting. The statement by "J. U. S." that the credulity of the mortgagees is exhausted, and that the directors are reverting to the shareholders for payment of further calls appears to be one of his own visionary ideas. It has no foundation on fact. The remainder of your correspondent's letter contains insinuations evidently made for a purpose. Facts speak for themselves and whether the statements of "J. U. S." or myself are correct can very easily be ascertained by a visit to the mine.—Baywater, April 3.

W. G. J.

DRAKEWALLS MINING COMPANY.

SIR.—I do not know whether the report of the Drakewalls meeting in last week's *Mining Journal* purports to convey to absent shareholders a faithful and complete record of what passed at the last meeting, or if it is to be regarded as an insertion on behalf of interested parties by way of advertisement. In the former case the intention has not been accomplished, as the gist of the whole matter—as to whether a claim on Mr. Peter Watson should be compromised or prosecuted—has been omitted.

Folkestone, March 31.

ROBT. T. ANDERSON.

THE HISTORY OF THERMOMETERS.

An interesting paper was read at the usual monthly meeting of the Royal Meteorological Society by the President, Mr. R. H. SCOTT, F.R.S., entitled "Brief Notes on the History of Thermometers," in which he stated that the subject had been handled in a comprehensive manner by M. Renou, a few years ago, in the *Annuaire* of the French Meteorological Society, so that he should merely mention some of the leading points. The name of the actual inventor of the instrument is unknown. The earliest mention of it, as an instrument then 50 years old, was in a work by Dr. R. Fludd, published in 1638. Bacon, who died in 1626, also mentions it. The earliest thermometers were really sympiesometers, as the end of the tube was open and plunged into water, which rose or fell in the tube as the air in the bulb was expanded or contracted. Such instruments were, of course, affected by pressure as well as temperature, as Pascal soon discovered. However, simultaneously with such instruments, thermometers with closed tubes had been made at Florence, and some of these old instruments were shown at the Loan Collection of Scientific Apparatus at South Kensington, in 1876. They are in the collection of the Florentine Academy, and in general principle of construction they are identical with modern thermometers. Passing on to the instrument as we now have it, Mr. Scott said that most of the improvements in construction in the earliest days of the instrument were due to Englishmen. Robert Hooke suggested the use of the freezing point; Halley the use of the boiling point, and the employment of mercury instead of spirit; and Newton was the first to mention blood heat. Fahrenheit was a German by birth, but was a protégé of James I., and died in England. Réaumur's thermometer, in its final form, owes its origin to De Luc; while the centigrade thermometer, almost universally attributed to Celsius, was really invented by Linnaeus. Celsius's instrument had its scale the reverse way, the boiling point being 0°, and the freezing point 100°. Mr. Scott then gave a brief account of some of the principal forms of self-registering and self-recording thermometers.

After the reading of this paper the meeting was adjourned in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of thermometers and of instruments recently invented. This exhibition was a most interesting one, and embraced 136 exhibits. The thermometers were classified as standard, maximum, minimum, combined maximum and minimum, metallic, self-recording, solar radiation, sea, earth and well, thermometers used for special purposes, thermometers with various forms of bulbs, scales, &c., and miscellaneous thermometers. In addition to these there were also exhibited various patterns of thermometer screens, as well as several new meteorological instruments, together with drawings and photographs.

FOREIGN MINING AND METALLURGY.

The intelligence to hand from Paris with respect to the condition of the Iron Trade at that important centre is not unfavourable upon the whole. Transactions have been carried through in iron at 6l. per ton; some merchants have attempted to establish a quotation of 6l. 4s. per ton, but they have not succeeded in doing so. The receipts of iron for building purposes at Paris amounted last year to 51,040 tons, as compared with 62,960 tons in 1882, 49,560 tons in 1881, and 45,539 tons in 1880. Cast-iron intended to be similarly employed was also received at Paris last year to the extent of 39,340 tons, as compared with 47,592 tons in 1882, 42,451 tons in 1881, and 33,654 tons in 1880. The metallurgical situation appears to be improving in Germany, especially in Westphalia. Pig has certainly presented a much better tone; the production of the third quarter of the year is already partially engaged. Bars have also been maintained with some firmness in consequence of the improved demand for pig, and 5l. 10s. per ton has become a basis price, below which merchants decline to do business. The production of pig in the German Empire and the Grand Duchy of Luxembourg amounted in February to 273,375 tons, as compared with 269,220 tons in February, 1883. The production of the first two months of this year amounted to 553,437 tons, as compared with 548,215 tons in the corresponding period of 1883. Krupp, of Essen, has obtained a contract for 1450 locomotive tyres at 11l. 3s. per ton. The export of rails from Germany in January amounted to 8592 tons.

The Belgian Iron Trade has continued to present a quiet tone. Orders are still scarce, and there have been general complaints as to the condition of affairs. The situation is discouraging as regards pig in this sense, that there is almost everywhere an excessive production, while the stocks which have accumulated cannot be disposed of. These are conditions which exert, of course, a depressing influence upon the entire market, iron being affected as well as pig. As a general rule, however, quotations have not varied. It cannot be said that orders have absolutely made default; the great works give a portion of the orders which they receive to small firms, and as the latter have to struggle on upon almost any terms they are obliged to accept almost all the conditions imposed upon them. This explains the conclusion of contracts reported from time to time at extremely low rates. English pig has remained at 2l. 3s. per ton in the case of small contracts, but in the case of any transaction of serious importance 2l. 2s. 6d. per ton would be accepted. Belgian pig has made 2l. 14s. per ton at Charleroi. Refining pig has been rather depressed at 1l. 14s. to 2l. 2s. per ton, according to quality. Iron has made no movement from its extremely low quotation of 4l. 16s. per ton; at this price producers would probably be disposed to conclude large transactions. No. 2 has been maintained at 5l. 2s., and No. 3 at 5l. 8s. per ton. Girders have made 5l. to 5l. 4s. per ton, No. 2 plates have made 6l. 2s. per ton, and No. 3 plates 7l. 2s. per ton.

The Anzin strike has continued to exert a beneficial influence upon the Belgian Coal Trade. Stocks have disappeared, and just when quite a break-up had been anticipated in prices the demand has increased to so large an extent that winter quotations have either been maintained or have not given way to a greater extent than is usually witnessed every spring. The demand for coal for metallurgical purposes is still, however, greatly reduced in Belgium, although the rates recently current have been about maintained. Transactions in coke cannot be carried much beyond 10s. 5d. per ton, although 10s. 7d. per ton is sometimes obtained in the case of superior descriptions. There has been scarcely any change in the general aspect of the German coal trade, which has remained dull and depressed. Meetings held by German colliery proprietors to arrange for a reduction of the production have not at present pro-

duced much effect. Similar negative results have attended previous efforts of the same description. Deliveries of German coal to Italy have continued to decline. In February these deliveries amounted to 4940 tons, while in January they stood at 5860 tons. The movement of coal over the various lines accommodating the basin of the Ruhr has been, on the other hand, rather more active, the daily deliveries during the first half of March having been 75,020 tons, as compared with 74,680 tons in the corresponding period of 1883. The aggregate exports of coal from the Zollverein in January, 1884, were 753,868 tons.

REPORT FROM CORNWALL.

April 3.—Events are certainly so far justifying the expectation we entertained that no substantial improvement in the tin market was to be looked for before the Easter holidays. At the same time we do see additional reasons for believing that it will not much longer be delayed, when business once more resumes its wonted course after the "spring break;" and that really seems about all that anyone can safely say. Apart from the general outlook, there is certainly, however, a decided improvement in detail. It is some time since there was so much that is encouraging to be said of the individual prospects of so many concerns—in fact, there hardly seems to be an unfavourable symptom to qualify this view.

May we hope that after the report of the committee, so thoroughly exonerating the executive of Killifreth, that mine may be allowed once more to pursue the even tenor of its way. It would be difficult to imagine anything more decisive, if they are well grounded, than the statements now put forth by way of comment upon Capt. Trevethan's charges, and we really cannot venture to suggest even a doubt as to the accuracy of a circumstantial document vouched for by such gentlemen as Mr. D. W. Bain, F. W. Michell, J. Bray, and S. Richards. Either the report is wholly conclusive, or it is wholly inaccurate, and there really seems no room for any further controversy.

Though we have nothing to do here with party politics, it is impossible to avoid noticing the thoroughly satisfactory results which are being evolved in the interests of mining enterprise by the threatened contest in West Cornwall. Mr. Atkinson, the Conservative candidate is, of course, wholly new to the peculiar ways and wants of the district. This, however, is not the case with the sitting members, Sir John St. Aubyn and Mr. Pendarves Vivian, and it is assuring to note the no ways uncertain sound with which they have delivered themselves upon points of the highest importance. The Dolcoath case, of course, came to the fore when these gentlemen were being questioned by their constituents, and, incidentally, they both hit what is very currently reported to have been the moving cause—the existence of an entail—for Mr. Basset's action, when they declared emphatically against dealing with landed property in a different way from other property—against the custom commonly recognised in the law of primogeniture, and the tying up of estates in favour of any particular person.

That, however, was, as we have said, a merely incidental reference. The important points were brought out directly when the members were asked their opinions with regard to mining leases. Now, Sir John St. Aubyn, as he very rightly said, has had more experience probably than any other man in the county in mining legislation, and he feels that the measures which he has assisted in passing are mere flea-bites when compared with this matter. But he has no doubt what ought to be done. "The terms on which a lease is granted," said he, "ought to be extended for a much longer period than now; and if parties have to quit a mine which they have properly worked they ought to be compensated." That is straight to the point.

Mr. Vivian went a little further into detail, though speaking to the same general effect, and his remarks are worth quoting in full, not merely as an exposition of general principles, but of the experience of a large mineowner. Said he, "The question is indeed a difficult one to deal with; but I am not aware that in other parts of England it has been known that the shareholders, after fairly working a mine, are displaced at the termination of the lease. So far as I know—and I have had some experience of coal mining, my firm having had to renew a lease after expending much money on it, and it being now one of the finest in Wales—no such thing has ever occurred as a refusal to renew. The lease in my case was renewed, and this should be so always. (Cheers.) There was no question of a fine. I never heard of such a thing. I am in favour of compensation being provided, so that if the landlord should be so unwise as to interfere the shareholders should feel sure of compensation." The Dolcoath fine happily has come a little too late in the day to be made a precedent against the miner; and seeing the feeling it has provoked, and the attitude now taken by Sir John St. Aubyn and Mr. Vivian, we are not quite certain it will not prove the thin end of the wedge to secure for the miner "fixity of tenure" as well as "fair rent." Mining property has been brought within the same category as agricultural, and the consequences must be accepted.

It is really difficult to understand why and how there should be any more technical breaches of the Metallurgical Mine Acts in the county. Surely their province ought by this time to be thoroughly well known; and yet we find this week at the Launceston Petty Sessions Capt. Richard Knutt, agent of Goodevere Mine, Altarnun, summoned for not making the proper returns to the Home Secretary as to the amount of minerals, &c., which had been raised during the year. Mr. A. E. Archer, of Truro, prosecuted on behalf of Mr. Frecheville, Her Majesty's Inspector of Mines. Defendant admitted the offence, but said that he did not receive the necessary forms for making the return in time. He was fined 10s. and the expenses. He was also further charged with not having an abstract of the Act relating to mines affixed in a conspicuous place on the premises, and was fined a similar amount for this offence as for the last. We call attention to this in the hope that it may serve as a warning.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

April 3.—Nothing of any moment has occurred during the week calling for special notice, for mining and manufacturing have gone on much as usual. The proposed line of railway from Dore, a station near Sheffield, to Churley, in the Midland, will give more direct route from Derbyshire to Manchester, and at the same time give railway facilities to some of the lead mining districts which have been walled off from the outer world so far as railway communication is concerned. Many of the roads are primitive and hilly, so that locomotion for heavy vehicles is by no means an easy matter. In addition to the lead ore there are extensive deposits of limestone and building stone that the proposed line will be the means of opening out. The line will also intersect Eyam, long noted for its lead mines, and it is to be hoped will lead to improving the condition of them.

The collieries in Derbyshire are feeling the effects of the comparatively fine weather, and most of them continue on short time, about four days a week. The trade with the Metropolis, on which so many depend, has been more than usually quiet of late, and prices have come down to a very low and really unremunerative point. On the other hand, wages are now much higher than what they were when coal was selling for 20 per cent. more money than at present. The consequence is notices have been given of a reduction in the price for coal-getting, and in the neighbourhood of Dronfield the men at one place have brought out their tools. However, there is no doubt that a reduction will have to be submitted to, seeing that in all probability trade will be much worse before it is better. The consumption of both house and gas coal, qualities that are most extensively raised in Derbyshire, must be expected to decline during the next three or four months, and it is likely that low as present prices are for the former they will yet be lower.

Good house coal is now delivered in London at 20s. per ton, the conveyance of which from the pits to the railway depot, including all charges, will be from 9s. to 10s. per ton, and then there is the cost of putting in sacks and carting, as well as agents' commission and merchants' profits. This is for the best description of coal, in the getting of which some 15 or 20 per cent. of small is made, and

which sells at from 1s. 6d. to 2s. 6d. per ton. This latter is a matter that is not often taken into consideration, for people, including miners, only look to the large and marketable coal, forgetting that the small has to be paid for getting, and is subject to the same amount of royalty, as the large. Steam coal from Derbyshire is delivered in London at from 18s. to 19s. per ton, and contracts have been taken at rather less than 17s., and it is needless to say that such prices cannot leave the smallest profits. Fortunately the iron trade has kept up well, so that the furnaces require a large quantity of the hard or steam coal, and the railway companies are also good customers, these two sources being of the greatest importance at the present time to the trade. Gas coal is not so much required, and the tonnage going away according to contracts is by no means heavy. Engine coal is also quiet, the quantity going into Lancashire being but moderate, the distance being so much greater by the Midland than by the Manchester, Sheffield, and Lincolnshire from the South Yorkshire district. In smithy and similar coal no change has taken place.

The Iron Trade of Derbyshire may be considered good, as compared with other districts, and the production has kept up well since the commencement of the year. Not quite so much perhaps is being sent into other districts, but the local works consume a large quantity; this is more especially the case as regards the foundries, the leading ones being favourably off for business, and there is every likelihood of an extensive demand for all kinds of pipes and other specialties in the shape of heavy castings, for which the Staveley and other foundries are noted. The rolling-mills are kept fairly going, but the production is still considerably below what it was formerly. The machine-works are fairly off for business, and the wagon-builders appear to be doing well in new work as well as repairs.

Several of the light branches of trade in Sheffield are quiet, and the workmen by no means fully employed. Still there is a steady output of most kinds of steel, although the rail department is anything but good. But a good deal is being required for springs, wire, and some description of tools, as well as for cranks, axles, and tyres. In the Siemens-Martin branch there appears to be more doing, this quality of steel being now recognised as the best for plates, especially for ships and boilers. Wheels and other castings are absorbing a rather moderate amount of crucible steel, whilst the demand for cutlery and tools is not so heavy as it was a few months ago. Indeed several of the cutlery houses are anything but busy, and it is only the leading and old establishments that are able to keep their hands fully going. The business doing is probably in the best qualities of table, pocket, and fancy knives. In edge tools, saws, and files a moderate business is being done. The most active department continues to be the armour-plate, and at both Brown's and Cammell's the men continue to be busily engaged in rolling such plates for our own as well as other Governments. In other descriptions of plates there is not so much doing. Rather more work is being turned out at the foundries, whilst the engineers' works, although not busy, are fairly employed.

The Coal Trade of South Yorkshire is anything but brisk, and short time continues to be the rule at the collieries. Not much is being done in house coal, but steam qualities are looking better, a good deal of the latter being sent to the Humber for exportation. Good coal has also been taken rather more for the home ports. Small coal does not sell so well, but a good deal is worked into coke, for which there is a steady demand, especially for Lincolnshire and Derbyshire for iron smelting purposes.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

April 3.—Business is largely suspended in all departments. Buyers prefer to delay operating until the course of prices has been decided upon at the Quarterly Meetings next week. Coalmasters and ironmasters are alike unable to do business this week in face of these meetings being near at hand. The representative of the Earl of Dudley is believed to be unfavourable to any reduction in the price of marked iron. Bars are likely, therefore, to be redeclared at 37. 2s. 6d. to 77. 10s. per ton. Sheets and plates rolled by the "list" houses will stand at 91. nominal. It is improbable that best Staffordshire pigs will see any declared reduction. Cold blast sorts are likely to be quoted at 80s., and hot blast at 60s.

The colliery owners will bring the question of a reduction in wages before the Coal Trades Wages Board at an early date. At present the office of president is vacant, since Mr. Haden Corser, barrister, has resigned on the ground of political engagements. It is proposed to invite Mr. Alfred Young, barrister, of the Oxford Circuit, to take the office. Whoever is appointed, one of his first duties will probably be to conduct an important arbitration, for it is evident that the men will not submit without much ado to any substantial reduction. The ironworkers are expressing their dissatisfaction of the course of the employers in asking the arbitrator of the Wages Board to further reduce wages. They are holding meetings in the district, and are passing resolutions denouncing the proceedings as unjustifiable and uncalled for, and pledging themselves to resist the proposed reduction, as "they consider that it would not tend to increase the trade." To give additional strength if possible to their opposition they have determined to call together a meeting of delegates for Monday next to fully consider the question.

That there is plenty of room yet to enhance the usefulness of iron, but that when the time for a transfer to steel comes South Staffordshire will be as well able to do its duty with steel as with iron are views that are entertained by most of the iron firms of this district. Expression was given to them on Saturday last at Dudley at a meeting of the South Staffordshire Institute of Iron and Steel Works Managers, by Mr. Richard Smith-Casson, of the Earl of Dudley's Round Oak Ironworks, Brimley Hill. Mr. Smith-Casson was speaking as the newly-elected Vice-President of the Institute. The opinion of one of the patentees of the Camson-Bichoux gas-furnace on such a point is valuable. Under the leadership of this gentleman, and of the new President, Mr. W. J. Hudson, of the Woodside Ironworks, the Institute during the ensuing business year should be of quite as much value to the Staffordshire iron and steel trades as it has been during any of the 18 years of its life. The discussions following upon the papers that are constantly being read before the members by men of standing in the various iron and steel centres of the country should be more widely known. Frequently they call forth opinions and ideas that would be of much service in the present experimental state of the industries.

REPORT FROM LANCASHIRE.

April 3.—There is a decided falling off so far as the demand for all classes of round coal in this district is concerned, and although the month has not opened with a general announced reduction in prices, the tendency is downwards, and at many of the Lancashire collieries there has been a giving way of about 6d. per ton. In all description of round coal only a very slow trade is being done, and the orders coming forward are not more than sufficient to keep the pits going about three to four days a week. Prices are so irregular that it is difficult to give really fixed quotations. In the Manchester district the leading firms are maintaining last month's rates, whilst at some of the neighbouring collieries reductions have been made, and in the West Lancashire district, where the question of some general action with regard to prices has been under consideration, the colliery proprietors have been left to take such individual action as the exigencies of trade in their own particular circumstances might render advisable. The result is that which colliery proprietors have stocks where they are anxious to clear, very low prices are being taken for quantities. Best Wigan Aries, although in a few cases 3s. 6d. is still quoted, can be got at from 8s. 6d. to 9s., with second qualities averaging about 7s. 6d., and Pemberton 4-ft. coals 7s. per ton. Common round coals are bad to sell, and for steam and forge qualities not much above 6s. is being got in many cases, whilst house fire qualities do not average more than 5s. 6d. to 6s. per ton at the pit. Engine classes of fuel, although only in moderate demand, keep up their price owing to the limited production of slack. Bargy at the pit mouth averages 4s. 6d. to 5s.; best slack, 4s. to 4s. 3d.; and good ordinary qualities, 3s. 3d. to 3s. 6d. per ton.

For shipments there is a fairly good demand; but there is so

much stock offering in the market that buyers are able to place out their orders at very low prices, ordinary Lancashire steam coal delivered at the High Level, Liverpool, or the Garston Docks being obtainable at 7s. and 7s. 3d., and second house coal at about 8s. 3d. per ton. A reduction of miners' wages in the West Lancashire district has been under consideration during the past week; nothing definite has yet been decided upon, but the matter will probably be brought forward at another meeting next week.

In the Iron Trade a general absence of business is still the prevailing feature, and with the prospect of lessened consumption in some of the iron-using branches of industry and a general want of confidence with regard to the future, buyers naturally are very indifferent about placing out orders for anything beyond actually known requirements. In the pig-iron trade makers generally are holding on to late rates, but there is rather more disposition to sell forward, and one or two fairly large lots of common foundry brands are reported to have been sold for delivery over the year at very low prices. For local and district brands quotations nominally remain at about 44s. to 44s. 6d., less 2½d. for forge and foundry qualities delivered equal to Manchester, with, however, little or nothing doing. The finished iron trade is in a depressed condition, and makers are finding it very difficult to get work to keep them going. For good local and North Staffordshire bars delivered into this district 51. 17s. 6d. per ton remain about the average price, but merchants are underselling, and 51. 15s. is taken in some cases, with common North Country bars and plates still offering freely at 51. 12s. 6d. per ton. The general reports as to the condition of the engineering trades show a falling off. Outside locomotive building, tool making, and one or two special branches, work is getting slack, and the prospects for the future are not at all hopeful.

TRADE OF THE TYNE AND WEAR.

April 3.—The general trade of this district is far from being in a satisfactory state. The depression in the iron and shipbuilding trades has had the effect of reducing the demand for labour to a serious extent, and a large number of men have been for the time thrown out of work. On the Wear about 6000 men are out, and on the Tyne a considerable number of men are also idle. A large number of new ships have been launched of late, but new orders are extremely scarce. There appears to be an impression that the shipping trade must improve and the freights be raised considerably before a revival can take place in this important trade. Outward freights have improved to some extent, and a few more vessels have been got away, but a considerable number are still laid up. The coal and coke trades continue dull in most branches, and the output has been much reduced at many works by working the pits only half time three days per week. The prospect for the steam coal trade north of the Tyne is not very encouraging; only the best works have been fully employed during the past week. However, it is anticipated that the Baltic season will be fully open in a few days, and this may cause an improvement. Steam small coal is in full request. The demand for house kinds has improved, as has the price of the latter on the London market, but the present rates still leave only a small margin of profit to those most favourably situated.

Gas coal is in fair demand considering the season, and as stocks of this coal are made in many cases the best gas coal pits are doing well at present. The iron trade is steadier, and this causes a better demand for coke and manufacturing coals. There is no change in the general tone with respect to prices—as a rule, they remain unchanged. The great strike of coal miners at the Anzin Works in France is causing a dearth of coals in the Nord region, and 2500 tons are sent daily by rail from Belgium to supply this want. The coalowners here should devote attention to the French market at present, as double the above quantity could be sent from the district at a low price. There appears to be no prospect of a termination of the strike, but it is expected that it may extend.

The Hutton and other principal house coalworks on the Wear are fairly employed, but great complaints are made about the present prices.

The accountants under the sliding-scale between the Northumberland colliery owners and the miners have given their return of the net average selling price of coal for the three months ending on February, 1884, from which it appears that the price was 5s. 1-16d. per ton, there being an increase of 5-18d. upon the standard average selling price of 4s. 8d. per ton fixed in the agreement of March 9, 1883. The present rate of wages for underground workmen and banksmen will therefore be reduced by 1½ per cent., calculated upon the present standard wage.

The shipments of coals and coke at Tyne dock have been good during the past week considering the general state of trade, the total shipments having been 91,093 tons, or 19,599 tons above the quantity for the corresponding week of last year. The general imports and exports were also good.

THE UNIVERSITY EXTENSION SCHEME.—An important meeting was held a few days ago at the Seaton Delaval Colliery, attended by over 100 delegates from the collieries in Northumberland. Mr. Albert Gray, M.P., presided, and the Bishop of Newcastle, Professor Stuart, and Mr. R. D. Roberts, Cambridge, attended. Some progress has been made in providing lectures on technical subjects connected with mining in various localities in Northumberland and Durham, and the principal subject for consideration at this meeting was the advisability of the miners' associations assisting in providing funds to support these lectures. At present these miners' associations cannot subscribe to funds for this purpose, but an attempt is to be made to induce the members to do so. The syndicate appointed to conduct the local lectures given under the auspices of Cambridge University have issued a report containing much valuable information respecting the vast amount of educational work at present being carried on by means of the local lectures and classes, and showing a considerable growth and extension of the syndicate's work. The success of the lectures in the North of England has been fully maintained, and the numbers attending are increasing. There are five mining centres, and Mr. Small, Christ's College, and Dr. Roberts, Clare College, took four, and the fifth was supplied by Prof. Lebour, of the Newcastle College of Science. The aggregate attendance at these five centres was about 600, almost all working men. The Northumberland pitmen are determined to support this movement as far as possible. At the present time there are eight centres in operation. The financial difficulty must be overcome, and then the number of centres will be largely increased. There is no doubt as to the ultimate result; the ablest miners are convinced that it is in the direction of education they must continue to move, and the struggle will not cease until the desired end is attained. The movement is also beginning to spread in the county of Durham. At Stanley, a large mining village in North-west Durham, a meeting was held last term, and a committee appointed for the purpose of starting a group of centres next winter.

Mechanics' Institutes were established at the principal collieries in this district many years ago, and in connection with them occasional lectures were given, and a great deal has been effected in educating the working miners by means of these institutions; but this new movement is a very important step in advance, and it gives promise of accomplishing important educational results. The initiative taken by Mr. Albert Gray in this matter is in the highest degree creditable to him and Mr. Burt, M.P. (himself brought up as a working miner), and Mr. W. Crawford, and the other agents of the Miners' Association in this district, will do their utmost to further the objects in view. What Cambridge has achieved in the mining districts on the Tyne and Wear demonstrates that in a few years the miners and artificers of England may become as renowned for their scholastic attainments as they are now famed for mechanical skill. Professor Stuart, who has done so much for this movement, justly said that mental and material progress must go hand in hand. There is in the North of England no small portion of the special genius that brought George Stephenson to the front, and the opportunity which the University scheme presents of developing that genius ought to be universally taken advantage of. The idea of the Miners' Association contributing to educate its members commends itself to all concerned.

The Iron Trade continues firm; the general feeling is satis-

factory, there being no weakness. The makers exhibit a firm front, and act as if they expected prices to improve, as they refuse to sell beyond April. If stocks show the large decline expected it is not improbable that purchases will be made more freely. The quotation is 37s. 3d. No. 3. Makers are little different; warrants 37s. nominally. The export trade has been fairly sustained at about the usual average for the season. The shipments for March of pig metal, 80,865 tons, were below those for the month of March, 1883, but in excess of the deliveries for March, 1883. Connal's warrant stocks are 60,247 tons, a reduction in the week of 310 tons. The arbitration on the wages question in the finished iron trade comes on this week in Newcastle. The depression in the finished iron trade increases, and works are often laid off for a few days. The prices of manufactured iron remain about the same—Ship-plates, 51.; boiler-plates, 61. to 61. 2s. 6d.; common bars, 51. 2s. 6d.

The Foundry Trade continues very well employed, and also bridge builders. Ordinary engineering works are dull, with some exceptions. Marine engine-builders are much in want of new orders, and many men have been paid off on these rivers lately; reductions in the wages have been effected at some works, but the men generally are opposed to reductions.

The Chemical Trade has fallen off considerably during the month of March, and the prices of the principal products has also fallen to a serious extent, bleaching powder having fallen 30s. per ton, and other products in proportion; at present, however, the prospect is improving, as there is a better demand from America, and also from other quarters.

Good progress continues to be made with the boring operations of Bell Brothers in the Tees for salt; it is hoped that the bed will be reached shortly in two more holes, and if so no time will be lost in increasing the quantity of salt raised there.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

April 3.—Among the extinct industries of North Wales is that of quarrying felspar for the manufacture of porcelain. Much notoriety was given some time back to the Breidden china, which was manufactured at Coalport from felspar obtained from the Breidden Hills, Montgomeryshire. More recently attempts have been made to utilise the felspar rocks of Glynceiriog, Denbighshire, for the same purpose, but the cost of carriage in both cases hindered the successful competition of the Welsh felspars with those obtained in Cornwall, and imported from Norway and Sweden. The mining of barytes from the Breidden Hills still goes on, the mineral obtained being manufactured for various purposes near Oswestry.

In Anglesea it is hoped that the proposed amalgamation of the Parys and Mona Mines will be carried through. With the extensive smelting-works of the first-named company close by and adjoining the port, and an increased supply of ore from the two mines, with a combined management, the important copper mining industry of the island would be placed on a more advantageous footing than hitherto. In Carnarvonshire several of the copper mines in the vicinity of Snowdon are opening out well. The mines of Lley and Llanrwst are suffering depression. In Merionethshire gold mining is well high extinct, and there are no new departures in copper mining. This is not a lead mining county. In Cardigan a suggestion has been made to group a number of the mines in the north of the county under one management. The only mine now selling ore in that district is the Tan-yr-Alit, which is selling from 15 to 20 tons a month. In Montgomeryshire the Van still goes on, but the other mines are not doing much. In Shropshire the great productive mines are struggling with low prices, but explorations are still carried on at the South Roman Gravels and other mines.

In all the great slate-producing districts the condition of the trade is satisfactory and the prospects are hopeful. New quarries are being developed and old ones restarted. The Bethesda and Bangor Railway is to be opened in July next, and a movement is on foot to extend it to the Llanberis and Carnarvon line for the accommodation of the slate quarries and the large population found in that direction. The Denbighshire and Shropshire Railway Bill has passed the House of Commons. One effect of this railway will be to extend the working of the North Wales coal field considerably to the east. The works of the Connah Quay Railway and Portlough are progressing. The piles required are being driven by a new process invented by a local man, Mr. J. Evans.

The colliers on the south side of Buckley Mountain are out on strike against a reduction of wages, and the Miners' Association have decided to support them, fearing lest the reduction should spread to the other collieries. Mr. Tyler, who for many years has been connected with the New British Iron as cashier received a presentation last week, accompanied with good wishes, on the occasion of his leaving the company's service, and Mr. Harker, late manager of the Brynkallit Collieries has also received a similar token of esteem from the men at the colliery with many expressions of good will. At the Liverpool Waterworks the building of the great masonry dam is progressing, blocks of stone weighing from 10 to 12 tons being now built in. The three great tunnels are advancing, and each part of this great undertaking is being pushed forward. A German translation of Mr. D. C. Dane's book "On the Metalliferous Deposits of Flint and Denbigh," accompanied by the illustrations, appears in the Austrian Journal for Mining and Smelting. Considerable interest is felt in these deposits by German miners, as being unlike, for the most part, the mineral deposits of their own country.

TRADE IN SOUTH WALES.

April 3.—Whatever may be the condition of the coal market in other parts, there can be no doubt that merchants and colliery proprietors in South Wales have their fair share of business. Swansea may be under a cloud for a time, and Newport may suffer for a week or two, but Cardiff seems to maintain an uninterrupted flow of trade under all circumstances, only controlled to some extent by the want of due facilities for expansion. Efforts are, however, being made to provide for more rapid shipment by superior appliances, and the amount exported will show that these efforts are not futile. Cardiff sent away last week 151,732 tons foreign and 16,993 coastwise; Newport, 30,603 tons foreign and 19,805 coastwise; Swansea, 15,372 tons foreign and about 10,000 coastwise. The house coal trade has improved during the last week owing to the cold weather. The patent fuel trade is also in a healthy condition. Swansea exported last week 10,280 tons, and Cardiff 4944 tons.

In the Mountain Ash district the Cwm-Pennar Coal Company are sinking a new shaft down to the 4 ft. This shaft will be used ultimately to ventilate the two other pits belonging to the company. The quantity of iron sent away last week from Cardiff was 2432 tons, while Newport exported a parcel of 800 tons to Smyrna, and another of 600 tons to Rouen. Iron ore remains in weak demand owing to the quantity in stock. Cardiff received 8855 tons from Bilbao, and 2753 from other places; Newport 9430 tons from Bilbao, and a load of pyrites from Huelva.

Steel plates are in great demand at from 16s. to 16s. 3d. per box, while wasters are enquired for at from 14s. to 14s. 6d. Mr. F. Morewood has secured another patent for coating metal plates with tin. The Plymouth (Merthyr) collieries are in a state of motley in consequence of alleged high-handed proceedings on the part of the management.

COPPER, LEAD, AND SPELTER.—Messrs. FRY, JAMES, and Co. (April 3) write:—Copper has been uniformly inactive, with a slowly dropping tendency in value of all descriptions. Lead, after a period of further weakness, has rallied to the prices of a fortnight ago. Spelter is inactive, and again rather easier to buy.

HOLLOWAY'S PILLS AND OINTMENT.—The great variations of temperature, the fogs, and the foul vapours which permeate the atmosphere, try the respiratory channels terribly; hence arise hoarseness, quinsy, loss of voice, bronchitis, and the whole train and endless variety of throat and chest affections which now prevail. Neglect of these in their early stages is almost criminal, as many a life may be saved through early and prompt treatment by means of Holloway's well-known remedies. This treatment can be readily and easily carried out, and soon disposes of the attack in a most satisfactory manner, by restoring the balance between the circulation and respiration, by lessening the inflammation, abating the febrile symptoms and by soothing the irritability of the nerves.

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Engines of any size, plain slide valve, Corliss, compound Corliss, Boilers, all sizes. Leaching Mills, Hallidie Wire Rope Tramways, Comet Crusher, with capacity of 12 to 20 tons per hour. White, Howell, Bruckner, and Stetefeldt Roasting Furnaces, &c.

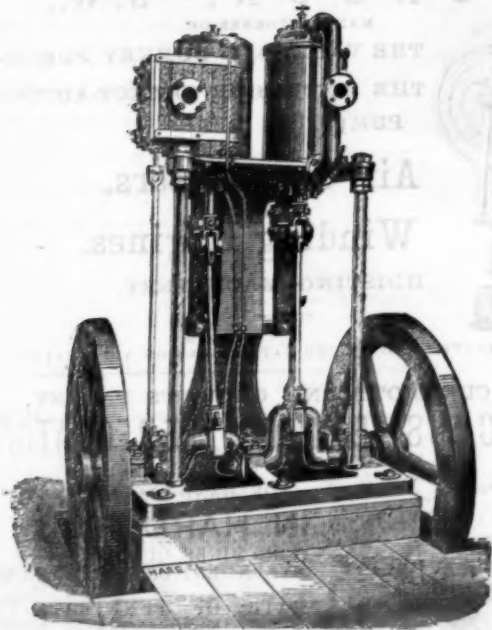
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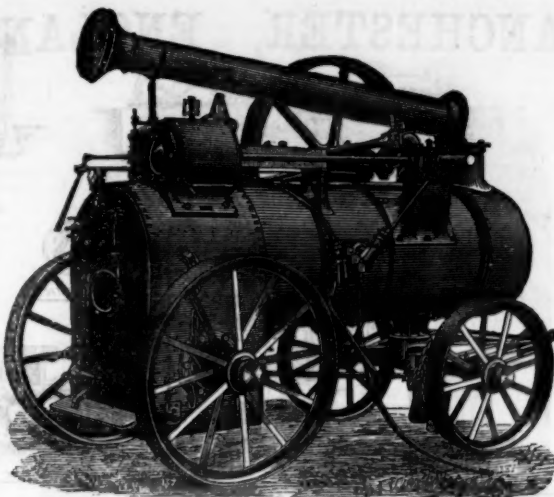
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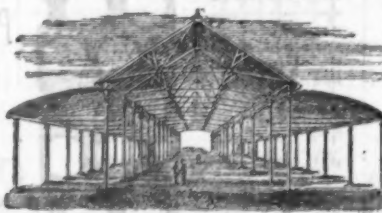
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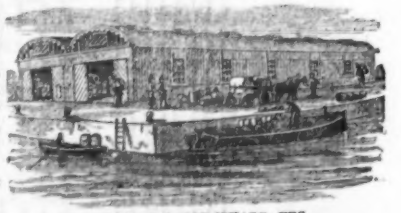
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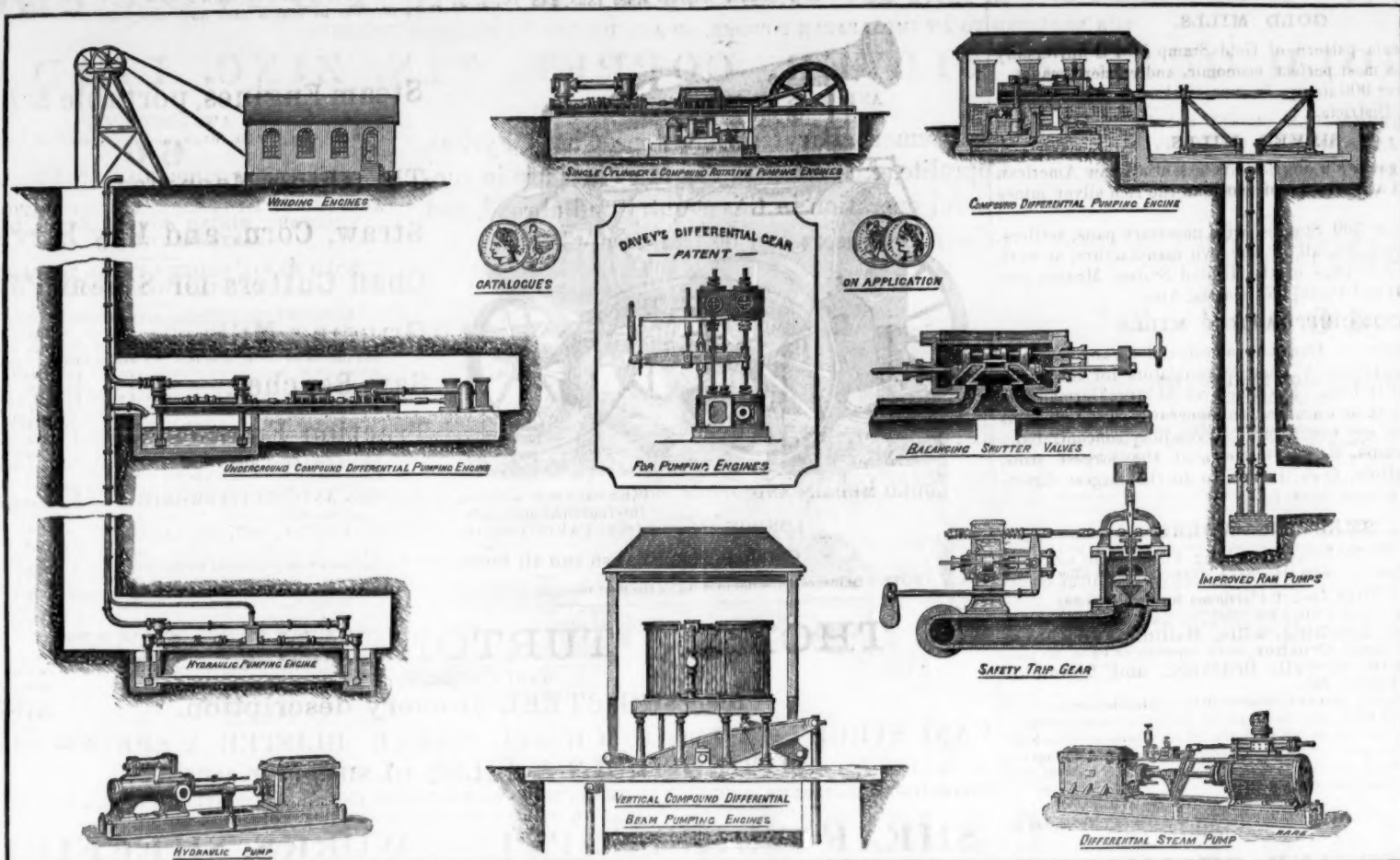
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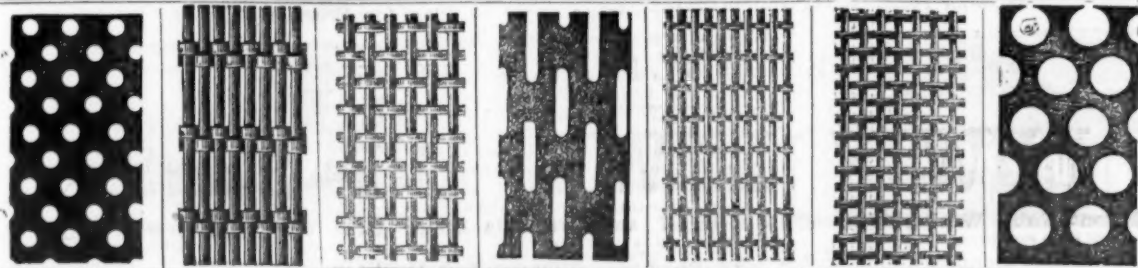


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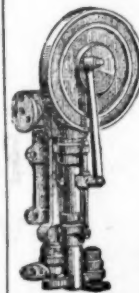
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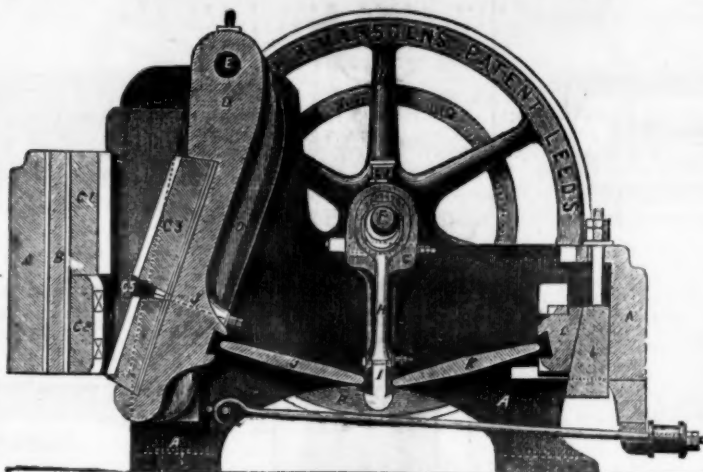
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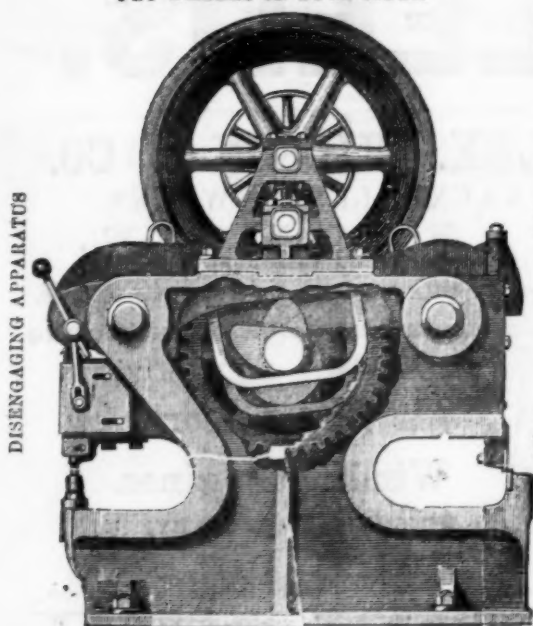
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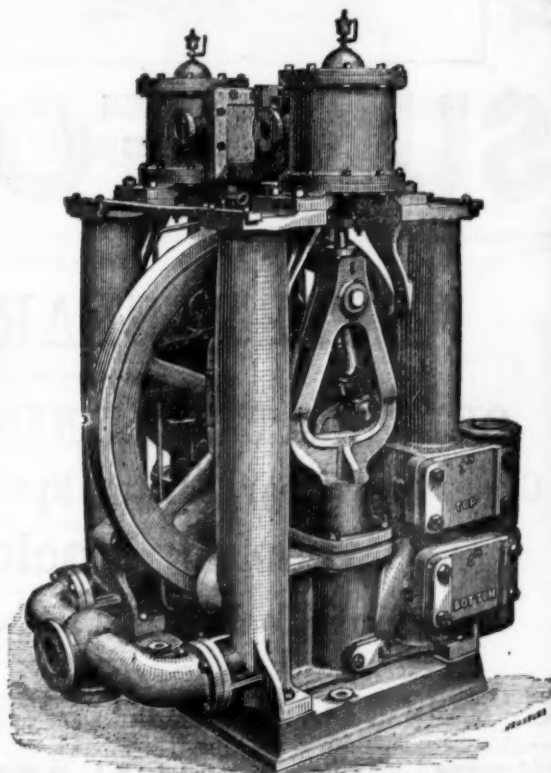
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